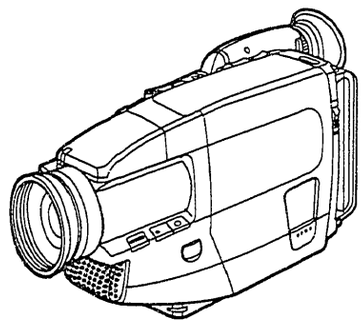
HITACHI

SERVICE MANUAL

TK	No.6307E

VM-E53A(U,C),(PX)
VM-E55A(U,C)



MANUAL RELATED TO THE VM-E53A/VM-E55A

TITLE	MODEL	MANUAL No.
Service Manual [Supplement]	VM-E53A VM-E55A	No. 6307E-1
Service Manual	VM-AC82A(R)	No. 6322E

Note:
Refer to the VM-E53A/VM-E55A Service Manual [Supplement] (No. 6307E-1) for the following items.

- Electrical Adjustment for CHAPTER 4.
- Block Diagrams for CHAPTER 8
- Pins Function of Microprocessors for CHAPTER 8.

8

SAFETY PRECAUTIONS

The following precautions should be observed when servicing.

1. Since many parts in the unit have special safety-related characteristics, always use genuine Hitachi replacement parts. Especially critical parts in the power circuit block should not be replaced with other makers'. Critical parts are marked with ⚠ in the schematic diagram.
2. Before returning a repaired unit to the customer, the service technician must thoroughly test the unit to ascertain that it is completely safe to operate without any danger of electrical shock.

X-RAY RADIATION

The primary source of X-ray radiation in this viewfinder is the picture tube. The tube used in this viewfinder is specially constructed to limit X-ray radiation emission. For continued X-ray radiation protection, the replacement tube must be the same type as the original, Hitachi approved one.

SPECIFICATIONS AND PARTS ARE SUBJECT TO CHANGE FOR IMPROVEMENT

8mm VIDEO CAMERA / RECORDER

May 1993 TOKAI Consumer Electronics Division

Specifications

General Specifications

Power requirements	6V DC
Power consumption	VM-E53A: 5.0W (when recording)
	VM-E55A: 5.3W (when recording)
Dimensions	3-9/16" W x 4-9/16" H x 8-1/16" D (91mm x 116mm x 205mm)
Weight	VM-E53A: 1.6lbs(710g) without battery pack, lens hood, lens cap and cassette
	VM-E55A: 1.6lbs(720g) without battery pack, lens hood, lens cap and cassette
Operating temperature	32°F ~ 104°F
Storage temperature	-4°F ~ 140°F

Video Recorder Specifications

Format	8mm
Record/playback	Two video record/playback heads
Video signal	EIA standard NTSC color
Tape speed	14.3mm/sec
Video input	1.0Vp-p, 75 ohm
Video output	1.0Vp-p, 75 ohm
Audio input	-7.8dBs (316mVrms)
Audio output	-7.8dBs (316mVrms)
Fast forward/rewind time	Less than 8 minutes with P6-120 cassette

Camera Specifications

Scanning	525 lines/60 fields/30 frames
Required minimum illumination	1lux
Pickup device	1/3" C.C.D.
Lens diameter	34mm

ATTENTION:
The product that you have purchased contains a rechargeable battery. The battery is recyclable. At the end of its useful life, under various state and local laws, it may be illegal to dispose of this battery into the municipal waste stream. Check with your local solid waste officials for details in your area for recycling options or proper disposal.

Ni-Cd

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CHAPTER 1

COMPARISON WITH PREVIOUS MODEL

← : Same as VM-E35A

ITEM	VM-E35A	VM-E53A/VM-E55A
GENERAL		
POWER REQUIREMENTS	6V DC	←
POWER CONSUMPTION	5.8 W	VM-E53A : 5.0 W/VM-E55A : 5.3 W
DIMENSIONS (W X H X D mm)	80.5 x 104 x 238	91 x 116 x205
WEIGHT	560 g	VM-E53A : 710 g/VM-E55A : 720 g
OPERATION TEMPERATURE	32° F ~ 104° F	←
STORAGE TEMPERATURE	-4° F ~ 140° F	←
VIDEO RECORDER SECTION		
FORMAT	8mm	←
RECORD/PLAYBACK SYSTEM	Four video record/ playback heads	Two video record/playback heads
VIDEO SIGNAL	EIA standard NTSC color	←
TAPE SPEED	14.3 mm/sec.	←
VIDEO INPUT	1.0Vp-p, 75 ohm	←
VIDEO OUTPUT	1.0Vp-p, 75 ohm	←
AUDIO INPUT	-7.8dBs (316m Vrms)	←
AUDIO OUTPUT	-7.8dBs (316m Vrms)	←
FAST FORWARD/REWIND TIME	Less than 8 minutes with P6-120 cassette	←
HEAD WHEEL	26.7 mm	40 mm
BASIC CHASSIS TYPE	SH	TH
CAMERA SECTION		
SCANNING	525 lines/60 fields/ 30 frame	←
REQUIRED MINIMUM ILLUMINATION	1 lux	←
CAMERA DEVICE	1/3" C.C.D	←
LENS DIAMETER	34 mm	←
ZOOM RATIO/APERTURE	8:1 (6mm - 48mm) F1.4	←
FEATURES		
WHITE BALANCE	AI Auto white balance	←
DIGITAL SIGNAL PROCESSOR	Yes	←
ELECTRICAL ZOOM	x64	x24 (16 x INST. ZOOM 1.5)
INSTANT (INST.) ZOOM	No	Yes (x1.5)
ELECTRONIC IMAGE STABILIZER	No	Only for VM-E55A
AUTOFOCUS SYSTEM	VIDEO AF	←
PROGRAM AE (SHUTTER SPEED)	Yes (Program AE only)	←
TITLER	Yes (2 page)	← (Only on the remote control)
FADE	Yes	Only for VM-E55A
MANUAL/AUTO FOCUS	Selective	VM-E53A : Auto mode only/VM-E55A : Selective
CAMERA LIGHT SHOE (DC LIGHT)	Yes	←
WIND (MIC) SWITCH	Yes	No
EXT. MICROPHONE JACK	No	←
PHONES (HEAD PHONE) JACK	No	←
ACCESSORIES		
WIRELESS REMOTE CONTROL	Yes (Parts No. 5615341)	Yes (Parts No. 5616581)
BATTERY PACK	Yes [VM-BP82]	←
AC ADAPTER/CHARGER	Yes [VM-AC82A]	Yes [VM-AC82A(R)]
EXTERNAL POWER ADAPTER	Yes (Parts No. 5861821)	Yes (Parts No. 5861832)
AV OUTPUT CABLE	Yes [Stereo Type] (Parts No. 5861721)	Yes [Monoural Type] (Parts No. 5860783)

SERVICE MANUAL ABBREVIATION LIST

A	
ACC	Automatic Color Control
ACK	Automatic Color Killer
ADC B-Y	Analog to Digital Converted B-Y Signal
ADC R-Y	Analog to Digital Converted R-Y Signal
ADC Y	Analog to Digital Converted Luminance
ADD	Adder
ADRS	Address
A.DUB	Audio Dubbing
AF	Autofocus
AFC	Automatic Frequency Control
AGC	Automatic Gain Control
AGC KILLER	AGC Killer Voltage
ALC	Automatic Level Control
AIC	Automatic Iris Control
AM	Amplitude Modulation
AMP	Amplifier
APC	Automatic Phase Control
ASBL	Assemble (Phase Matching)
AUD.	Audio
AUX	Auxiliary
A5V	Always 5V B+ Source
B	
B (BLU)	Color Signal BLUE
BATT.	Battery
BF	Burst Flag
BG	Burst Gate or Back Ground
BGP	Burst Gate Pulse
BH	Power Supply for Selecting VHF High Band
BL	Power Supply for Selecting VHF Low Band
BLK	Blanking
BM	Power Supply for Selecting VHF Mid Band
BPF	Bandpass Filter
BS	Power Supply for Selecting VHF Super Band
BU	Power Supply for Selecting UHF Band
BU	Back-up
BUF.	Buffer Amplifier
B-YL	Battery
C	
C	Chroma
C (CHROMA)	Chrominance Signal
CAPST.	Capstan
CAS	Column Address Strobe
CARRI.	Carrier
CATV	Cable TV
C.BLANK	Chroma Blanking
C.BLK	Composite Blanking
CCD	Charge Coupled Device
CG	Character Generator
C.FG/CFG	Capstan Frequency Generater
C.FREE RUN	Chapstan Free Run
CH	Channel
CHD	Camera Horizontal Drive Pulse
CHAR.	Character
CHROMA	Chrominance
C.MEMORY	Counter Memory
CNR	Chroma Noise Reducer
COM.	Common
COM.	Composite
COMPA	Comparator
COMPE	Compensator
COMPO	Composite
COMP-EXP	Compressor-Expander
CONV.	Converter
CONT	Control
CORR.	Correlation
COUNT.	Counter
CP	Clamp Pulse
C.PAUSE	Camera Pause
C/R	Capacitor/Resistor
C.RESET	Counter Reset
C.REVERSE	Count Reverse
CST	Cassette

C	
C.SYNC	Composite Synchronizing Signal
CTL	Control Track Pulse (Control)
CYL	Cylinder
CY (CYAN)	Color Signal CYAN
D	
DA	Double Azimuth
D/A	Digital to Analog Converter
D-D	Direct Drive
DEEMPHA.	Deemphasis
DEF	Deflection
DEMOD.	Demodulator
DEMPX	Demultiplexer
DET	Detector
DIFF. AMP	Differential Amplifier
DISCRI.	Discriminator
DISP.	Display
DL	Delay Line
DN	Down
DO	Dropout
DOC	Dropout Compensator
DRAM	Dynamic Random Access Memory
D.REF 25/30	Delayed Reference 25/30Hz
D.SW 25/30	Delayed Switching 25/30Hz
DSP	Digital Signal Processor
DT/OE	Data Transfer/Output Enable
D/W	Dark/White
DWC	Delayed Write Clock
E	
EA-ROM	Electrically Alterable Read Only Memory
E-E	Electronic-to-Electronic
EMPHA.	Emphasis
EQ	Equalizer
EVF	Electronic Viewfinder
EXT.	External
F	
F.ADV	Frame Advance
F/V	Frequency-to-Voltage Converter
FB	Feed Back
FF	Flip Flop
F.FWD	Fast Forward
FG	Frequency Generator
FM	Frequency Modulation
FREQ.	Frequency
FRAME ADV	Frame Advance
Fsc	Color Sub Carrier Frequency
FWD	Forward
G	
GEN	Generator
GND	Ground
H	
H	Horizontal
HBF	Horizontal Burst Flag
HD	Horizontal Drive
Hi-Fi	High Fidelity
HLT	Halt
HPF	High-pass Filter
HPL	High-pass Limiter
HSS	Horizontal Sync. Separator
I	
IF	Intermediate Frequency
INC	Row Counter Increment
INDI.	Indicator
INT.	Internal
INV.	Inverter
I/O	In/Out (Input/Output)
IR	Infrared Rays
IRIS DET	Iris Detection
IRT	Instant Recording Timer
L	
LCD	Liquid Crystal Display
LIN.	Linear
LM	Loading Motor

L	
LNC	Line Noise Canceller
LOG	Logarithm
LP	Long Play
LP (H)	Long Play Signal (Active High)
LPF	Low-pass Filter
LUMA	Luminance
L/R	Left/Right
M	
MAN	Manual
M.BRAKE	Main Brake
M.CUT	Monitor Cut
MEM.	Memory
MEM ON	Memory ON
MEM SW	Memory Switch
MEM VIDEO	Memorized Video
MIX	Mixer
MMV	Monostable Multivibrator
MOD.	Modulator
MPX	Multiplex
MPX VIDEO	Multiplexed Video
M.STATE	Mechanism State
M.STOP	Memory Stop
MTS	Multi Channel Television Sound
N	
NEG	Negative
NFB	Negative Feed Back
NORM. or NOR.	Normal
NR	Noise Reduction
O	
OB	Optical Black
O/E	Odd/Even Field
OSC	Oscillator
OSD	On-Screen Display
P	
PB/PLAY	Playback
P.CONT	Power Control
PIF	Picture Intermediate Frequency
PG	Pulse Generator
P IN P	Picture in Picture
PIX MOVE	Picture Move
PLL	Phase Locked Loop
POS.	Positive
POWER CONT.	Power Control
PROG.	Program
PROTECT.	Protector
PWM	Pulse Width Modulation
R	
R (RED)	Color Signal RED
RAM	Random Access Memory
RAS	Row Address Strobe
RC	Reading Clock
RCC	Reading Clock Clear
RCR	Row Counter Reset
REC	Record
RECT.	Rectifier
REF	Reference
REF 25/30	Reference 25/30Hz from servo circuit
REG	Regulator
REL	Refresh Control
REW	Rewind
REV	Reverse
RF	Radio Frequency
RM	Reel Motor
ROM	Read Only Memory
R-YL	Color Difference Signal R-YL
S	
SAP	Second Audio Program
SAW	Sawtooth
SC	Serial Control
SC1 (0°)	3.58MHz Subcarrier Signal 1 (0-degree Phase Shifted)

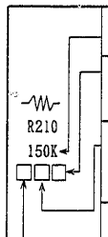
S	
SC2 (90°)	3.58MHz Subcarrier Signal 2 (90-degree Phase Shifted)
SEP.	Separator
SG	Signal Generator
S/H	Sample and Hold
SIF	Sound Intermediate Frequency
SOL	Solenoid
SP	Standard Play
SP/LP	Standard Play/Long Play
S.REEL	Supply Reel Sensor
SRCH	Search
SRV	Servo
STABI.	Stabilizer
S.TRACK	Slow Tracking
STBY	Standby Mode
S-VHS	Super VHS
SW 15Hz	15Hz Head Switching Pulse
SW 25/30Hz	25/30Hz Head Switching Pulse
SYNC	Synchronizing signal
SYS.CON	System Control
T	
T (TELE)	Telephoto Angle
T.BRAKE	Take-up Brake
T/L	Tuner/Line
TP	Test Point
T.REEL	Take-up Reel Sensor
T.RESET	Timer Reset
TRS	Transfer
TμP	Timer Microprocessor
TU-μP	Tuning Microprocessor
U	
U/D	Up/Down
UNI.	Unified
V	
V (VERT)	Vertical
VAR	Variable
V.AGC	AGC Voltage
VCA	Voltage Controlled Amplitier
VCO	Voltage Controlled Oscillator
V.DRV	Vertical Drive Pulse
V.DUB	Video Dubbing
V/F	Voltage to Frequency Converter
VHS	Video Home System
VF	Focus Voltage
VOL.	Volume
V-REF	Voltage Reference
VP	Vertical Pulse
VSS	Vertical Sync. Separator
Vss	Voltage Super Source
VT	Tuning Voltage
VT-U	Tuning Voltage-UHF
VT-V	Tuning Voltage-VHF
VCXO	Voltage Controlled Crystal Oscillator
W	
WC	Write Clock
WCC	Write Clock Clear
WE	Weighting
WHT	Color Signal WHITE
WIDE	Wide Angle
WHD	Wide Horizontal Drive
WHT BAL CONT.	White Balance Control
Y	
Y	Luminance Signal
Y/C	Luminance/Chrominance
YE (YEL)	Color Singal YELLOW
YL	Luminance Signal (Low Component)
ANOTHER	
μP	Microprocessor
5V	ON 5V B+ Source
9V	ON 9V B+ Source

WHEN USING THIS SERVICE REFERENCE MATERIAL

1. How to Read Abbreviations

Values, dielectric resistances (power capacitances), tolerances, grades of resistors (excluding variable resistors, etc.) and capacitors are indicated in the schematic diagrams using abbreviations. Collate these abbreviations and the following tables to read abbreviations and replace parts correctly.

〔RESISTORS〕

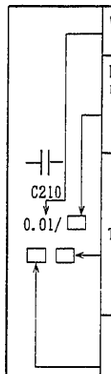


Value	No indication ····· ohm K ····· kohm
Tolerance	No indication ····· ± 5% K ····· ±10% M ····· ±20%
Power capacitance	No indication ····· 1/8W (All capacitances other than 1/8W are indicated in schematic diagrams with W omitted.)
Type	No indication ·· Carbon film fixed RC ····· Carbon solid RW ····· Power-type wire wound solid RS ····· Metal oxide film solid RN ····· Metal film solid

Example

R210
150K ····· 150 kohm, carbon solid
RC.1/2.K 1/2W, ±10%

〔CAPACITORS〕



Value	No indication ····· μF P ····· PF
Dielectric resistance	No indication ····· 50WV (All resistances other than 50WV and those of electrolytic capacitors are indicated with WV omitted.)
Tolerances	No indication ····· ±10% J ····· ± 5% M ····· ±20% C ····· ±0.25PF Z ····· +80%-20% (No indication for electrolytic capacitors. (excluding tantalum and high stability electrolytic capacitors.)
Type	No indication ··· Ceramic, general electrolytic (see circuit symbol to distinguish from ceramic.) MYL ····· Mylar (Polyester film) STY ····· Styrol TA ····· Tantalum KU ····· High stability electrolytic MP ····· Metallized paper

Example

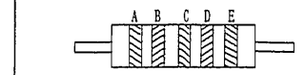
C210
0.01/25 ····· Mylar, 0.01μF, 25WV
MYL.J ±5%

2. Markings in Schematic and Circuit Board Diagrams

(1) Parts with marks "■" attached to circuit numbers in the schematic and circuit board diagrams are discrete components.
(2) Parts with marks "●" attached to circuit numbers in the schematic and circuit board diagrams are chip components.
(3) Parts with marks Ⓩ in the circuit board diagrams are leadless jumpers.

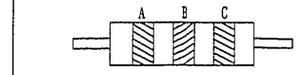
3. How to Read Capacitance of Resistance-Type Capacitors and Coils

〔CAPACITOR〕



CAPACITY : (10A+B)×C (PF)
TOLERANCE : D
RATED VOLTAGE : BODY COLOR
PINK : 25V
GREEN : 50V
CHARACTERISTICS : E

〔COIL〕



INDUCTANCE : (10A+B)×C (μH)

COLOR	A, B	C	D	E
Black	0	10^0	±20%	For temperature compensation
Brown	1	10^1		
Red	2	10^2		
Orange	3	10^3		
Yellow	4	10^4		
Green	5	10^5		
Blue	6			
Violet	7			
Gray	8		±30%	High dielectric constant type
White	9			For temperature compensation
Gold		10^{-1}	± 5%	
Silver		10^{-2}	±10%	High dielectric constant type

4. Cautions on Use of MOS ICs

(1) MOS ICs are inserted in black foam for shipment. This foam is a conductor which short-circuits between the leads to prevent damage. Do not remove ICs from this foam during storage. Avoid removing ICs from this foam, placing them on plastic which is likely to be charged with static electricity or inserting them into styrol foam.
(2) High voltages may be applied during soldering caused by leakages from the soldering iron. Be sure to ground the tip of the soldering iron or use a low voltage soldering iron.
(3) The human body and clothes made of synthetic fiber or nylon gloves may be charged with several thousand volts of static electricity because of friction. Workers should be grounded.

LEADLESS (CHIP) COMPONENT IDENTIFICATION

1. Leadless Transistor

The part name of a leadless transistor is indicated by a code on its surface, using one letter, one letter and one numeral, two letters, two letters and one numeral, two numerals, two numerals and one letter, three letters, or four letters.

Note: There are transistors with the same code but differnt part names, or with the same part name but different codes. Refer to the parts lists to finally identify a transistor.

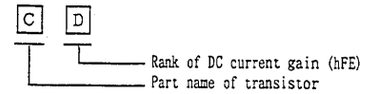
CODE	PART NAME	CODE	PART NAME
Leadless (Chip) Transistor			
3925	2SC3925	BR	2SC2412K
1CQ	2SB902	BR	2SC4617
1D	2SC3127	BS	2SC2412K
1DS	2SD1328S	C-7	2SA811
1DT	2SD1328	C1G	KSC1623
1R	2SB970TX	CB	2SC3646
2BQ	2SK374PQ	CC	2SA1122C
2BR	2SK374QR	CC	2SC3647T
2Y	2SC3757	CC	2SC3647
2YQ	2SC4691	CD	2SA1122D
3N	2SK620	CE	2SA1122E
4N	XN5601	CK	2SD999
4Q	XN1B301	CP	2SC4097
4R	XN1C301	CQ	2SC2411K
5C	XN4601	CR	2SB710
5C	XP4601	CR	2SC2411
5H	XP4501	CR	2SB1219
5H	XN4501	D16	2SC1622A
5K	XP4401	D17	2SC1622A
5K	XN4401	D18	2SC1622A
5L	XN5501	DB	2SD1766
5N	XN6501	DE	2SC2463
5O	XN6401	DF	2SD1623
5R	XP1501	DF	2SD1898
5R	XN1501	DG	2SD1624
5S	XN1504	DK	2SB798
5V	XN1401	EC	2SA1022
5W	XN2501	F-2	2SC1009F2
5X	XN4504	F-3	2SC1009F3
7R	XN2401	F-4	2SC1009F4
7S	XN1601	FC	2SC2619
AA	2SD1757K	FR	2SA1774
AKQ	2SA1738	FR	2SA1037K
AKQ	2SA1806	FR	2SA1576R
AL	2SA1791	FS	2SA1037K
AM	2SC4656	GC	2SC2734
AO	2SB709AQR	GM	3SD1615
AQ	2SB709AQ	HQ	2SA1036K
AQ	2SB766	IC	2SC3016
AR	2SB1462	IRD	2SA1484
AR	2SB766	IS	2SB792S
AR	2SB709ARS	IT	2SB792T
AR	ASB1218R	L-4	2SC1623L4
AS	2SB766	L-5	2SC1623L5
AS	2SB709AS	L-6	2SC1623L6
B3	2SC1621B3	L-6	2SC2812L6
B4	2SC1621B4	L-7	2SC2812L7
BC	2SB1188	L5	MMBC1623L5
BD	2SB1121	L6	MMBC1623L6
BE	2SB1260	LB	2SC2462B
BF	2SB1123	LC	2SC2462C
BF	2SB1308	LD	2SC2462D
BG	2SB1124	LR	2SC2412KLN
BH	2SB1001	M-5	2SA812
BQ	2SB709A	M-6	2SA1179
BR	2SC4081R	MC	2SA1052MC
MD	2SA1052MC-D	ZS	2SD874S
N3	2SC1653	VR	2SD968A
ND	2SD1306ND	W1	FMW1
NE	2SD1306NE	W10	FMW10
PD	2SA1171D	W2	FMW2
PS	2SD814	W3	FMW3
QB	2SC2620QB	WR	2SD602
QC	2SC2620QC	X1	UMX1
QO	2SC2714	X1	IMX1
R22	2SC4226	X2	IMX2
R22	2SC3356	Y1	FMY1
R32	2SC4227	Y12	2SA1464
R34	2SC3583	Y25	NTM3906
R42	2SC3585	Y3	FMY3
RB	2SC2618RB	YCD	2SK197
RC	2SC2618RC	YI	2SA1666
RK	2SC3357	YQ	2SD601YQ
S1	FMS1	YR	2SD601YR
S2	FMS2	YR	2SD1819R
SC	2SA1121	YR	2SD2216
SO	2SA1162	YS	2SD601YS
SP	2SC3082K	Z1	IMZ1
T1	IMT1	Z2	IMZ2
T1	UMT1	Z0	2SD874T
T2	IMT2	ZQ	2SD601A
UD	2SC2404	ZR	2SD874R
Digital Transistor			
3	DTC143TK	6C	UN9113
4	DTC114TK	6S	XP4113
6	DTC144TK	8B	UN5212
13	DTA143EK	8C	UN9213
14	DTA144EK	8C	UN2213
15	DTA124K	8S	XP4213
15	DTA124EU	9L	XP1213
16	DTA144EU	9L	XN1213
16	XDA144EK	A1	FMA1
16	DTA144EE	A1	UMA1
23	DTC143EK	A2	FMA2
24	DTC114EU	B2	UMB2
24	DTC144EK	B2	IMB2
25	DTC124EU	C2	FMC2
25	DTC124K	C5	FMC5
26	DTC144EE	D2	IMD2
26	DTC144EU	F52	DTB123
26	XDC144EK	G1	FMG1
33	DTA143XK	G2	FMG2
43	DTC143XK	G21	DTD113ZK
52	DTA123YK	G5	FMG5
60	UN511F	H03	DTC343TK
64	DTC114YK	H2	IMH2
80	UN521F	H2	UNH2
4P	XN1A312T	H27	DTC363EK
6B	UN5112	R04	XSR1104
6C	UN2113	R31	FP1L2Q
FET			
30	2SK621	WS	2SK322T
1FQ	2SK321FQ	WT	2SK322T
1FR	2SK321FQR	X15	2SK425
1KP	2SK316	X4	2SK94
2BQ	2SK663	XAF	2SK980FG
DV	2SK1579	YC	2SK197YC
J0	2SK208	YD	2SK197YD
K	3SK166	YE	2SK197YE
K4	2SK160K4	ZD	2SK217ZD
K5	2SK160K5	ZE	2SK217ZE
KB	2SK323		

(1) Identification with two letters

Use this code and the following chart for transistor identification.

Example:

Code	Part name
CD	2SA1122D
LD	2SC2462D

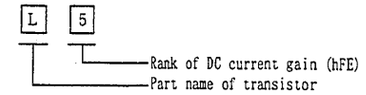


(2) Identification with one letter and one numeral

Use this code and the following chart for transistor identification.

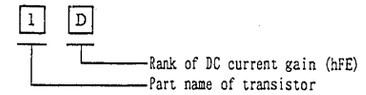
Example:

Code	Part name
L5	2SC1623(5)
L6	2SC1623(6)



Example:

Code	Part name
1D	2SC3127D



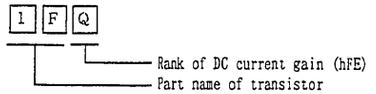
Note: Codes S1, S2, T1, W1, W2, W3, X1, Y1, Y3, Z1 and Z2 encode only the part names.

(3) Identification with one numeral and two letters

Use this code and the following chart for tarnsistor identification.

Example:

Code	Part name
1FQ	2SK321Q

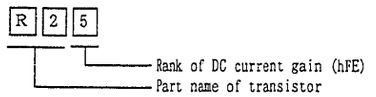


(4) Identification with one letter and two numerals

Use this code and the following chart for transistor identificaion.

Example:

Code	Part name
R25	25C3356

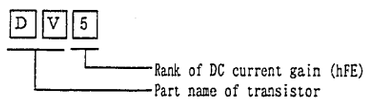


(5) Identification with to letters and one numeral

Use this code and the following chart for transistor identification.

Example:

Code	Part name
DV5	2SD596

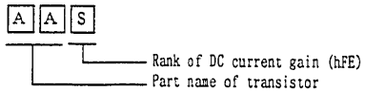


(6) Identification with three letters

Use this code and the following chart for transistor identification.

Example:

Code	Part name
AAS	2SD1757KS



2. Leadless Diode

The part name of a leadless diode is indicated by a code on the surface, using one letter and one numeral, two letters, two letters and one numeral, two numerals and one letter, or three numerals. Use this code and the following table to identify the part name of a diode.

Note: Refer to the parts lists to finally identify a diode.

CODE	PART NAME	CODE	PART NAME
Diode			
0	HVU300A	3D	RB715F
1.0	1SV201	3.0L	MA3030L
2.0	MA3020	3.6L	MA3036L
5.1	MA3051L	3.9L	MA3039L
5.1	MA3051M	4.3H	MA3043H
6.8	MA3068	4.3L	MA3043L
6.8	MA3068M	4.3M	MA3043M
7.5	MA3075L	4.7L	MA3047L
8.2	MA3082M	4.7M	MA3047M
9.1	MA3091	5.1H	MA3051H
20	HZM6	5.1L	MA3051L
24	1SV221	5.1M	MA3051M
27	RD2.7M B	5.6M	MA3056M
30	RD3.0M B	6.2L	MA3062L
51	RD5.1M B2	6.2M	MA3062M
56	RD5.6M B	6.8H	MA3068H
91	RD9.1M B	6.8L	MA3068L
102	RD10M B2	6.8M	MA3068M
122	RD12M B2	6.8M	MA3068
163	RD16M B3	7.5H	MA3075H
182	RD10M B2	7.5L	MA3075L
271	RD2.7M B	8A	UN221D
272	D2.7M B2	8.2H	MA3082H
301	RD3.0M B	8.2M	MA3082M
362	D3.6M B2	9.1M	MA3091M
391	D3.9M B1	9.1M	MA3091
512	RD5.1M B2	10L	MA3100L
561	RD5.6M B	10M	MA3100M
621	RD6.2M B1	11L	MA3110L
681	RD6.8M	12M	MA3120M
683	RD6.8M B3	13H	MA3130H
911	RD9.1M B	18M	MA3180M
2.7H	MA3027H	36M	MA3360
Zener Diode			
1A	MA110	M3A	MA199
A3	1S2835	MC	MA153
A4	HSM2836C	MC	MA143
A5	1S2837	MH	MA141K
A6	HSM2838C	MH	MA151K

CODE	PART NAME	CODE	PART NAME
Zener Diode			
B	SB0505CP	MH	MA152K
B64	SFPB64	MI	MA132K
B74	SFPB74	MN	MA141WA
BE	1SV172	MN	MA152WK
C1	HSM88S	MN	MA151WA
C2	HSM276S	MO	MA132WA
C3	1SS226	MO	MA152WA
C4	HSM88WK	MP	MA133
F7	KV1470	MT	MA151WK
H5	HVM14	MT	MA141WK
J	SB07-03C	MU	MA132WK
K	DA221	MU	MA151WA
M1A	MA159	N	DAN222
M1C	MA158	N	DAN202T
M1M	MA721	NU	MA152WK
M1N	MA713DAT	P	DAP202T
M1P	MA714	S4	D1FS4
M2A	MA122	SA	SB10-05P
M2B	MA123	Z	DA106K

3. Leadless Resistor
The resistor value is indicated on its surface, using three numerals, or one letter and one numeral.

(1) Identification with three numerals
Read this code following the same procedure as when reading the color code on discrete resistors.

Example :

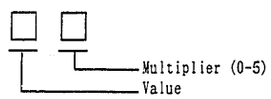
code	value
330	33 x 10^0 = 33 ohms
561	56 x 10^1 = 560 ohms
123	12 x 10^3 = 12K ohms
1R2	1 + 0.2 = 1.2 ohms (R: Decimal point)

(2) Identification with one letter and one numeral
Use this code and the following chart for resisitor identification.

Letter	Value	Letter	Value	Letter	Value
A	1	J	2.2	S	4.7
C	1.2	L	2.7	U	5.6
E	1.5	N	3.3	W	6.8
G	1.8	Q	3.9	Y	8.2

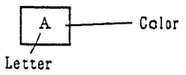
Example :

code	value
A1	1 x 10^1 = 10 ohms
G2	1.8 x 10^2 = 180 ohms
L3	2.7 x 10^3 = 2700 ohms
S4	4.7 x 10^4 = 47K ohms
W5	6.8 x 10^5 = 680K ohms



4. Leadless Capacitors
The capacitor value is indicated on its surface, using body colcr and one letter, or one letter and one numeral.

(1) Identification with body color and one letter



Body Color	Letter	Value	Body Color	Letter	Value
Red	A	1(PF)	Blue	A	100(PF)
	C	2		C	120
	E	3		E	150
	G	4		G	180
	J	5		J	220
	L	6		L	270
	N	7		N	330
	Q	8		Q	390
	S	9		S	470
Black	A	10(PF)		U	560
	C	12		W	680
	E	15		Y	820
	G	18	White	A	0.001(μF)
	J	22		E	0.0015
	L	27		J	0.0022
	N	33		L	0.0027
	Q	39		N	0.0033
	S	47		S	0.0047
	U	56		W	0.0068
	W	68	Green	A	0.01(μF)
	Y	82		E	0.015
				J	0.022
				N	0.033
				S	0.047
				U	0.056
				W	0.068
				Y	0.082
			Yellow	A	0.1(μF)

Example : Color — Letter — Value
Red — A — 1PF
Black — A — 10PF

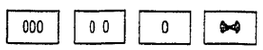
(2) Identification with one letter and one numeral

Letter/Numeral	Value	Letter/Numeral	Value
A0	1(PF)	A2	100(PF)
H0	2	C2	120
M0	3	E2	150
d0	4	G2	180
f0	5	J2	220
m0	6	L2	270
n0	7	N2	330
t0	8	Q2	390
y0	9	S2	470
A1	10(PF)	U2	560
C1	12	W2	680
E1	15	Y2	820
G1	18	A3	0.001(μF)
J1	22	E3	0.0015
L1	27	J3	0.0022
N1	33	N3	0.0033
Q1	39	S3	0.0047
S1	47	W3	0.0068
U1	56	A4	0.01(μF)
W1	68	E4	0.015
Y1	82	J4	0.022
		N4	0.033
		S4	0.047
		U4	0.056
		W4	0.068
		A5	0.1

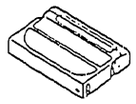
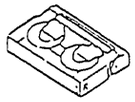
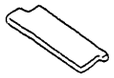
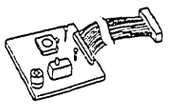
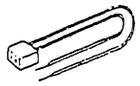
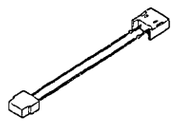
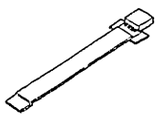
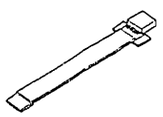
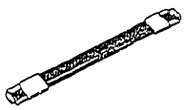
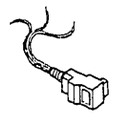
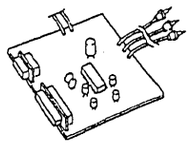
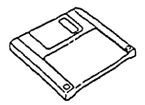
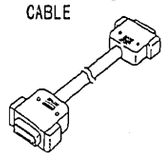
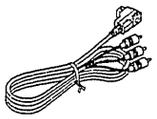
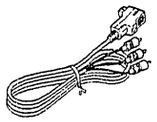
Example :

Letter/Numeral	Value
A0	1PF
A1	10PF

5. Leadless Jumper
The leadless jumper is indicated as shown below.



JIGS AND TAPES FOR ADJUSTMENT

1. ALIGNMENT TAPE COLOR BAR/400Hz (20HSC-2) No.7099231 	2. CASSETTE TORQUE METER SRK-8T-132 No.7099235 SRK-8T-112 No.7099385 	3. MASTER PLANE No.7099237	4. REEL DISK HEIGHT JIG No.7099238 
5. SPECIAL DRIVER No.7099239	6. ATF-R JIG (SW3:ON) No.7099461 	7. C12 LIGHT BALANCE FILTER 46mmφ No.7099369	8. 2-PIN EXTENSION CABLE No.7099283 
※9. 2-PIN EXTENSION CABLE No.7069038 	※10. 10-PIN EXTENSION CABLE No. 7069039 	※11. 9-PIN EXTENSION CABLE No.7069040 	※12. 17-PIN EXTENSION CABLE No.7069033 
13. DSP AV OUTPUT JIG No.7099456 	14. DSP-R JIG No.7099448 	※15. CAMERA ADJ. FLOPPY DISK No.7069032 	★16. PERSONAL COMPUTER
★17. PERSONAL COMPUTER 9-PIN or 25-PIN CABLE 	◎18. AV OUTPUT CABLE 	◆19. AV INPUT CABLE 	

MARKS
※ : New jigs and tools
★ : Goods on the Market
◆ : Optional Accessory
◎ : Accessory

Note 1: Always set SW3 on the ATF-R jig to ON.
Note 2: The ATF jig (No.7099386) can also be used in place of ATF-R jig to adjust this model.
Note 3: The DSP jig (No.7099442) can also be used in place of DSP-R jig to adjust this model.
Note 4: The illustration shows a stereo AV input cable, but the adjustments can also be performed with a monaural input cable.
Note 5: The illustration shows a stereo AV output cable, but a monaural output cable is provided with this unit. The adjustments can also be performed with a monaural output cable.

HOW TO USE THE EXTENSION CABLE

No.	NAME OF EXTENSION CABLE	PARTS No.	HOW TO USE (PURPOSE OF USE)
8	2-PIN EXTENSION CABLE	7099283	• For power supply. (Red: Negative, Brown: Positive) • Power supply cable after the case removed.
9	2-PIN EXTENSION CABLE	7069038	• Installed between the main circuit board and loading motor.
10	10-PIN EXTENSION CABLE	7069039	• Installed between the main circuit board and cylinder. Note: Using this extension cable causes noise to occur in the playback picture. This cable is used to check voltage and waveforms. Check the picture quality in the regular connection state.
11	9-PIN EXTENSION CABLE	7069040	• Installed between the main circuit board and capstan motor.
12	17-PIN EXTENSION CABLE	7069033	• Installed between the sensor and main circuit boards.

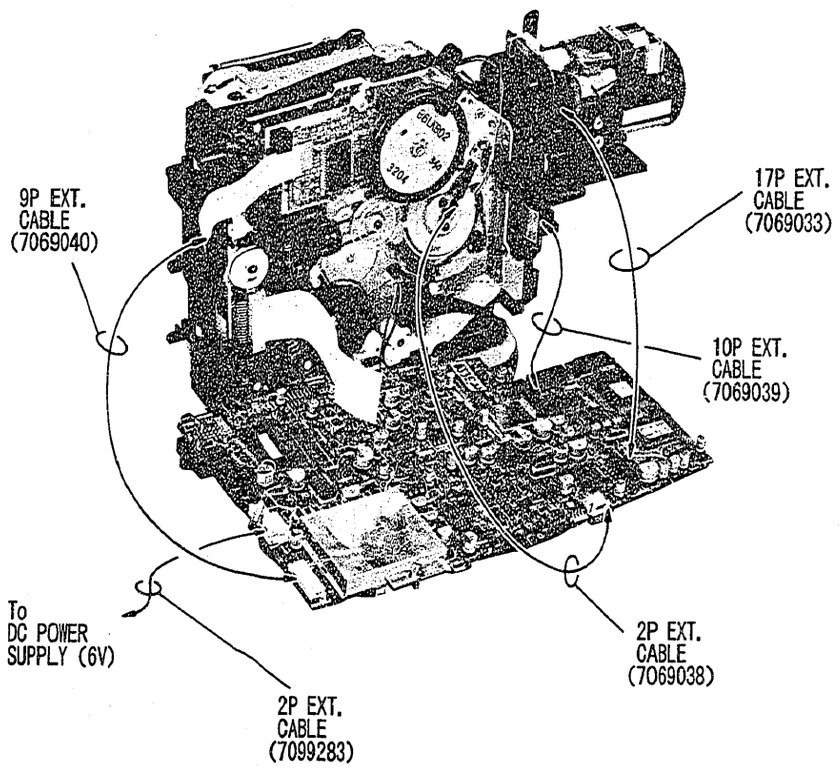

9P EXT. CABLE (7069040)
17P EXT. CABLE (7069033)
10P EXT. CABLE (7069039)
To DC POWER SUPPLY (6V)
2P EXT. CABLE (7099283)
2P EXT. CABLE (7069038)

Fig. 1-1

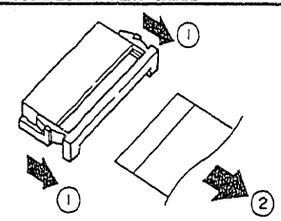
CHAPTER 2

DISASSEMBLY

CAUTION

1. When dismantling the lens block, never remove components other than the zoom motor, iris block, focus motor and flat cable of the lens.
2. Set the camera/recorder to the eject state before dismantling it. If the camera/recorder will not enter the eject state due to a defect, refer to "2. DISASSEMBLY METHOD WHEN TROUBLE OCCURS".
3. Disconnect flat cables from connectors by the procedure shown in Fig. A. Since many circuit boards in the camera/recorder are connected by in-board connectors, be sure to follow DISASSEMBLY when removing the circuit boards.

HOW TO DISCONNECT A FLAT CABLE



① Release the lock of the connector on the left and right simultaneously.
② Pull out the flat cable.

Fig. A

1. IDENTIFICATIONS OF MAJOR COMPONENTS

Numbers in ( ) show the numbers of Figs. that describe how to remove the components.

1.1 Major Components and Circuit Boards

1.1.1 Main Block Section

1.	Cassette Lid	(3-1)
2.	Left Case	(3-4)
3.	Top Cover	(3-1)
4.	Microphone (MIC)	(3-4)
5.	Camera Block	(3-4)
6.	Rubber Ring	(3-1)
7.	Lens Hood Holder	(3-1)
8.	Lens Hood	(---)
9.	Right Case Assembly	(3-1)
10.	Main Circuit Board	(3-5)
11.	VCR Frame	(3-5)
12.	Tape Transport Mechanism	(3-5)

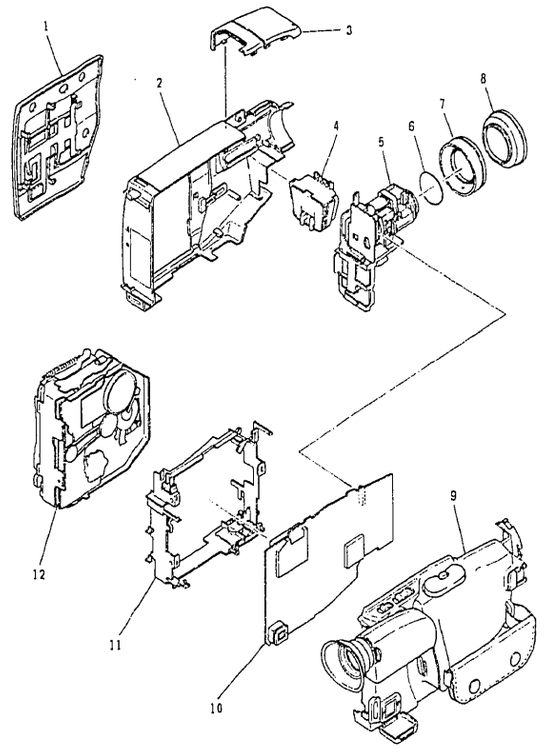


Fig. 1-1

1.1.2 Right Case Section

1.	REC SW/Batt. Circuit Board	(3-3)
2.	T/W SW Unit	(3-3)
3.	Right Case	(3-3)
4.	DC Light Terminal	(3-3)
5.	Hand Starp	(3-3)
6.	AV Jack Cover	(3-3)
7.	Electronic Viewfinder (EVF) Block	(3-3)

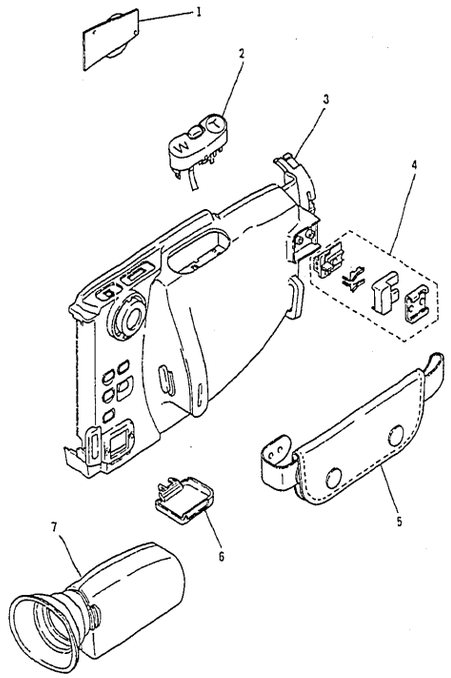


Fig. 1-2

1.1.3 Camera Block Section

1.	Sensor Circuit Board	(3-6)
2.	Sensor Plate	(3-6)
3.	CCD Image Sensor	(3-6)
4.	Sensor Guide	(3-6)
5.	Sensor Rubber	(3-6)
6.	Crystal Filter	(3-6)
7.	Sensor Cover	(3-6)
8.	Lens Block	(3-6)
9.	Camera Frame	(3-3)
10.	Wiring/Switch Unit	(3-3)
11.	H. (Horizontal) Gyro Circuit Board	(3-3)
12.	V. (Vertical) Gyro Circuit Board	(3-3)

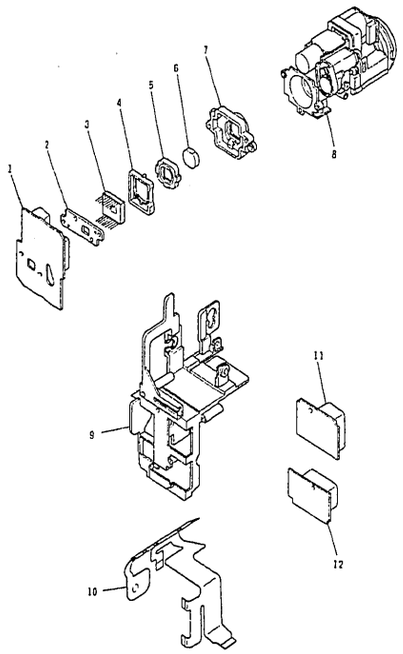


Fig. 1-3

1.1.4 Electronic Viewfinde (EVF) Section

1.	EVF Left Case	(3-7)
2.	CRT Top Cover	(3-7)
3.	CRT	(3-7)
4.	Electronic Viewfinder (EVF) Circuit Board	(3-7)
5.	CRT Bottom Cover	(3-7)
6.	EVF Right Case	(3-7)
7.	Clear Cover	(3-7)
8.	EVF Lens	(3-7)
9.	Eye Cup	(3-7)

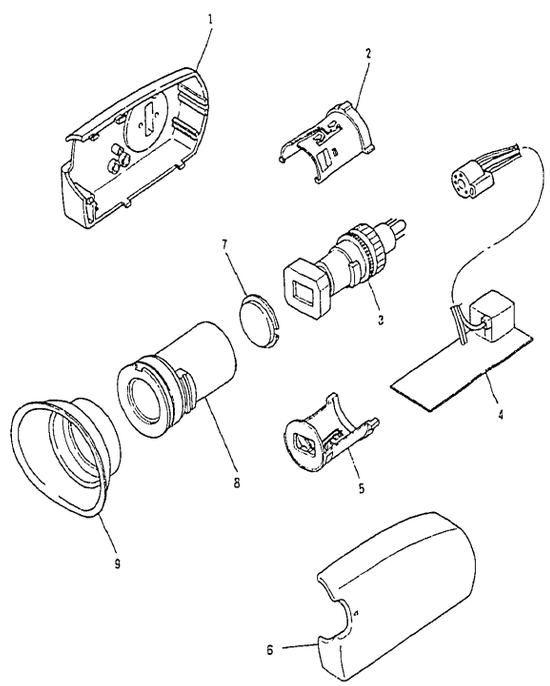


Fig. 1-4

1.1.5 Lens Section

1.	Iris Block	(3-8)
2.	Focus Motor	(3-8)
3.	Lens	(3-8)
4.	Zoom Motor	(3-8)
5.	Position Sensor	(3-8)
6.	Lens Flat Cable	(3-8)

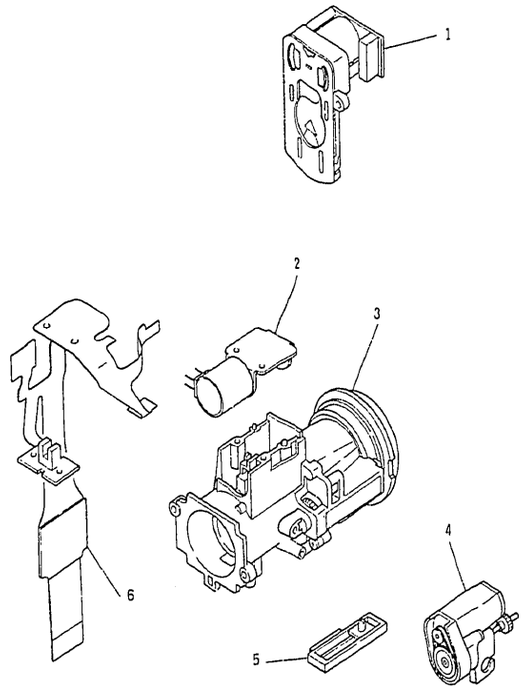


Fig. 1-5

1.2 Major Tape Transport Mechanism Components

1.2.1 Top View

1.	Cylinder	(4-2)
2.	Capstan Motor	(4-1, 2)
3.	Loading Motor	(4-2)
4.	Pull-out Pole	(4-3, 4)
5.	Loading Gear (1)	(4-2)
6.	Loading Gear (2)	(4-2)
7.	Pressure Roller Cam Gear	(4-3, 4)
8.	Pressure Roller	(4-4)
9.	Loading Relay Gear (1)	(4-7)
10.	Take-up Reel Brake	(4-4)
11.	Eject Lock Drive Arm	(4-6)
12.	Take-up Reel Disk	(4-5)
13.	Reel Drive Idler	(4-6)
14.	Take-up Guide Roller	(4-5)
15.	Loading Relay Gear (3)	(4-7)
16.	Supply Reel Disk	(4-6)
17.	Supply Reel Brake	(4-6)
18.	Tension Band Holder (Tension Band)	(4-6)
19.	Eject Arm	(4-6)
20.	Tension Spring	(4-6)
21.	Tension Arm	(4-6)
22.	Supply Guide Roller	(4-5)
23.	Impedance Roller	(4-5)
24.	Dew Sensor	(4-4)

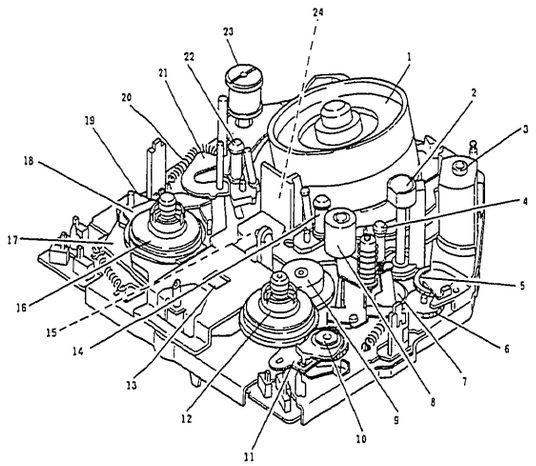


Fig. 1-6

1.2.2 Bottom View

1.	Capstan Motor	(4-1, 2)
2.	Pulley Gear	(4-4)
3.	Static Discharge Brush	(4-2)
4.	Trouble Sensor Circuit Board	(4-4)
	• End LED	
	• Supply and Take-up End Sensors	
	• Supply and Take-up Reel Sensors	
	• Safety Tab Switch	
	• Tape Select Switch	
	• Hi-8 Tape Switch	
	• Cassette Holder Switch	
	• Mechanism State Switch	
5.	Capstan Belt	(4-4)
6.	Center Gear	(4-4)

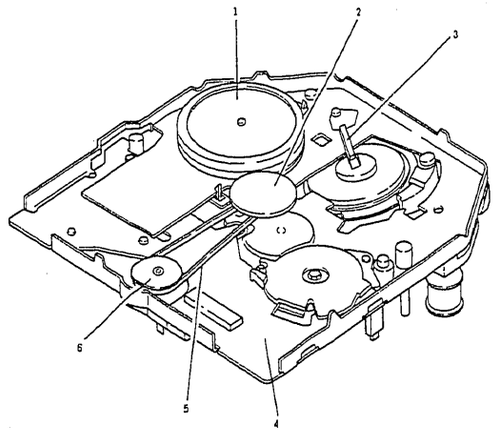


Fig. 1-7

2. HOW TO SET TO THE EJECT STATE MANUALLY

Note: This is not necessary for camera/recorders which are set to the eject state normally.

1) Lift the cassette lid in the direction of arrow (A) and insert tweezers between the cassette lid and left case. (Fig. 2-1)
2) Release two (2) tabs (C) of the plate spring in the cassette lid in the direction of arrows (B) and remove the cassette lid in the direction of arrow (D).

Note: If the electrical circuit is defective, connect a power supply directly to the loading motor that can be seen through hole (E) in the left case; the camera/recorder can be set to the eject state. (Fig. 2-2) Be careful of the following when supplying power.

① Set the power supply to 3-5 V DC. (Do not apply more than 5V as this could result in a secondary defect.)
② Connect the red wire to the positive terminal and the brown wire to the negative terminal to activate unloading. Connect the brown wire to the positive terminal and the red wire to the negative terminal to activate loading.

3) Remove the following parts in advance, referring to subsequent items.

• Lens hood holder	(Fig. 3-2)
• Top cover	(Fig. 3-2)
• Open the right case	(Fig. 3-2)
• Main block	(Fig. 3-4)
• Main circuit board	(Fig. 3-5)
• VCR frame and tape transport mechanism	(Fig. 3-5)
• Loading motor	(Fig. 4-2)

4) Turn the Loading Gear (1) in the direction of arrow (F) to unload. (Fig. 2-3)

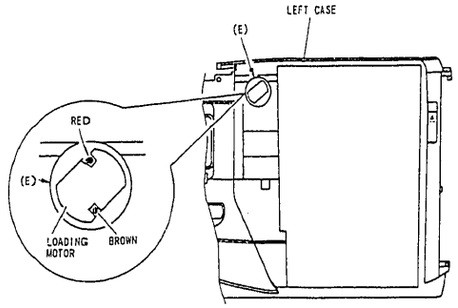


Fig. 2-2

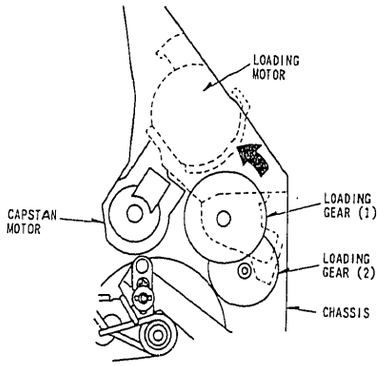
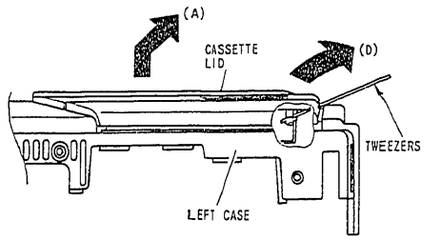


Fig. 2-3



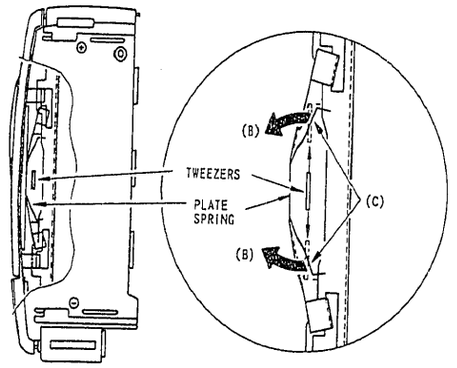


Fig. 2-1

3. NORMAL DISASSEMBLY METHOD

Perform the following to dismantle the camera/recorder if unloading is performed normally (the camera/recorder can be set to the eject state). If unloading cannot be done, refer to "2. HOW TO SET TO THE EJECT STATE MANUALLY".

3.1 CASES AND CIRCUIT BOARDS

3.1.1 Cassette Lid, Lens Hood Holder, Top Cover, and Right Case Removal

Note: Set the unit to the eject state and remove the lens cap from the lens hood.

A. Cassette Lid (Figs. 3-1, 3-2)

1) Release tabs of the plate spring on the cassette lid in the direction of the arrows. (Fig. 3-1)
2) Remove the cassette lid in the direction of the arrow. (Fig. 3-2)

B. Lens Hood Holder (Fig. 3-2)

1) Remove one (1) screw.
2) Turn the lens hood holder in the direction of the arrow.
3) Remove the lens hood holder in the direction of the arrow.

Note: The rubber ring is removed on its own when the lens hood holder is removed. Be sure to reinstall the rubber ring as show in Fig. 3-2.

C. Top Cover (Fig. 3-2)

Components to remove in advance	Fig No.
• Lens Hood Holder	3-2

1) Remove the top cover in the direction of the arrow.

D. Open the Right Case (Fig. 3-2)

Components to remove in advance	Fig No.
• Lens Hood Holder	3-2

1) Open the AV jack cover.
2) Remove six (6) screws.
3) Open the right case in the direction of the arrow.
4) Disconnect three (3) connectors and one (1) flat cable.

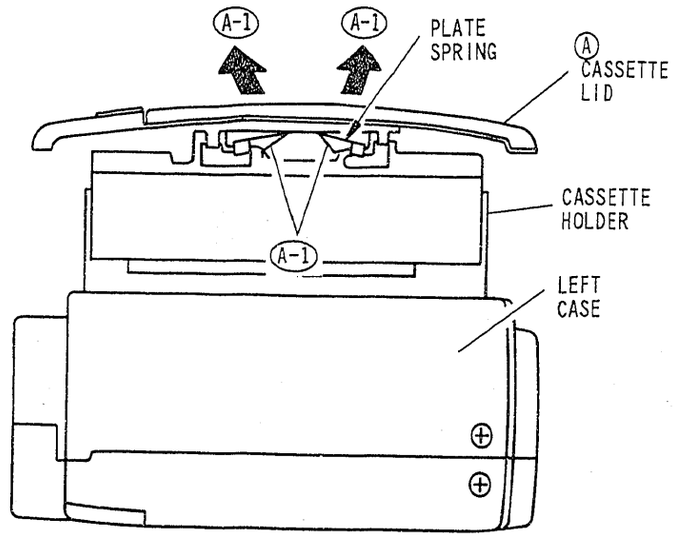


Fig. 3-1

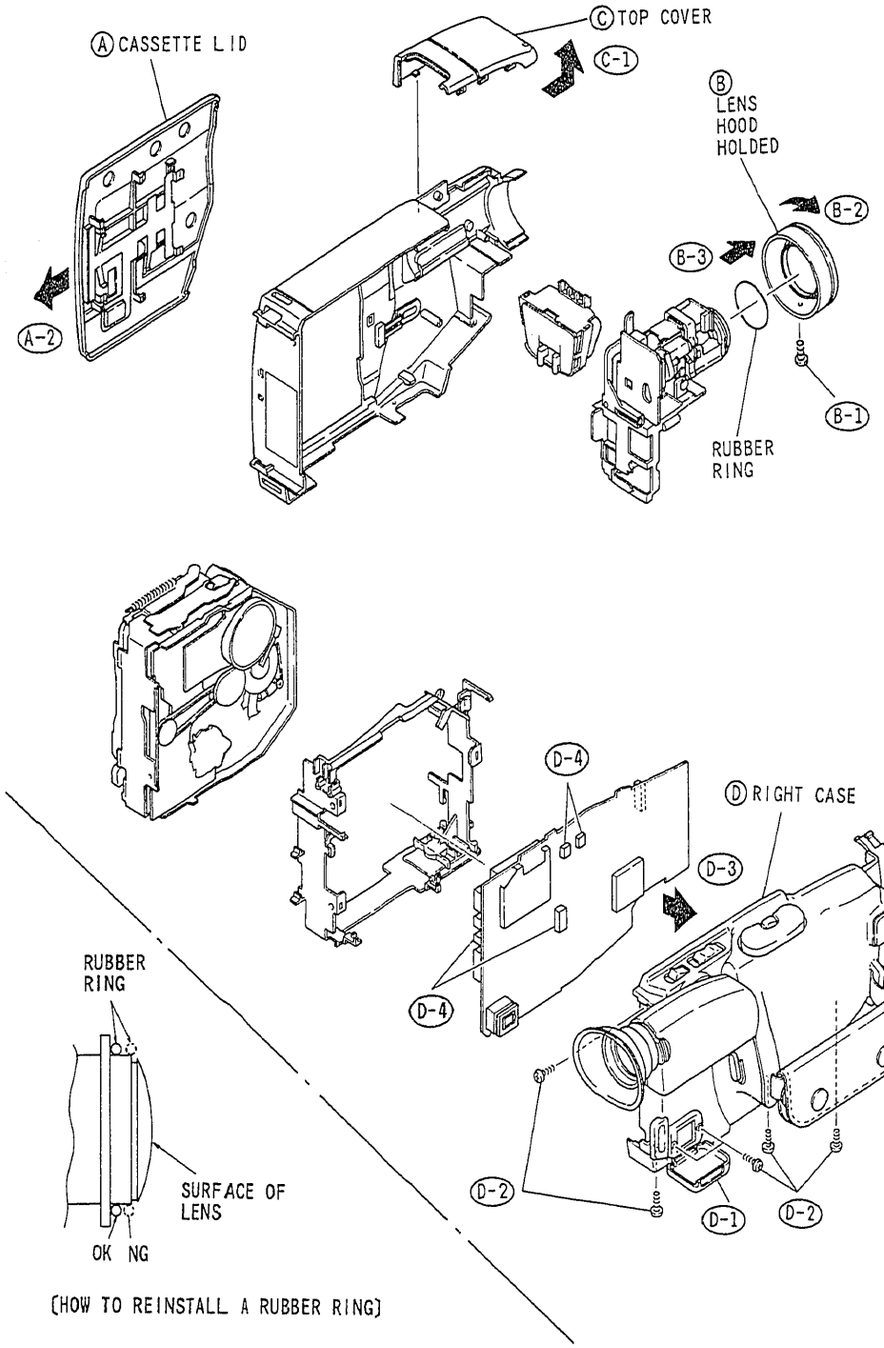


Fig. 3-2

3.1.2 Electronic Viewfinder (EVF) Block, REC SW/Batt. Circuit Board, T/W SW Unit, Accessory Shoe and DC Light Terminal, Hand Strap, AV Jack Cover and Right Case Removal

Components to remove in advance	Fig No.
• Lens Hood Holder	3-2
• Top Cover	3-2
• Open the right case	3-2

A. Electronic Viewfinder (EVF) Block (Fig. 3-3)

1) Remove two (2) screws.
2) Remove the EVF in the direction of the arrow.

Note: The EVF plate and plate spring are removed on their own when the EVF is removed.

B. REC SW/Batt. Removal (Fig. 3-3)

1) Remove two (2) screws.
2) Remove the REC SW/Batt. circuit board in the direction of the arrow.

Note: The lithium battery on the REC SW/Batt. circuit board can be recharged. It cannot be removed from the board.

C. T/W SW Unit (Fig. 3-3)

1) Release five (5) tabs.
2) Remove the T/W SW unit in the direction of the arrow.

D. Accessory Shoe and DC Light Terminal (Fig. 3-3)

1) Remove two (2) screws.
2) Remove the accessory shoe and DC light terminal in the direction of the arrow.

E. Hand Strap (Fig. 3-3)

Components to remove in advance	Fig No.
• REC SW/Batt. circuit Board	3-3

1) Remove two (2) screws.
2) Remove the hand strap from the strap holder on the right case.

F. AV Jack Cover and Right Case (Fig. 3-3)

Components to remove in advance	Fig No.
• EVF Block	3-3
• REC SW/Batt. Circuit Board	3-3
• T/W SW Unit	3-3
• Accsseory Shoe and DC Light Terminal	3-3

Note: Remove the EVF block, T/W SW unit, accessory shoe and DC light terminal only when removing the right case.

1) Remove the AV jack cover in the direction of the arrow.

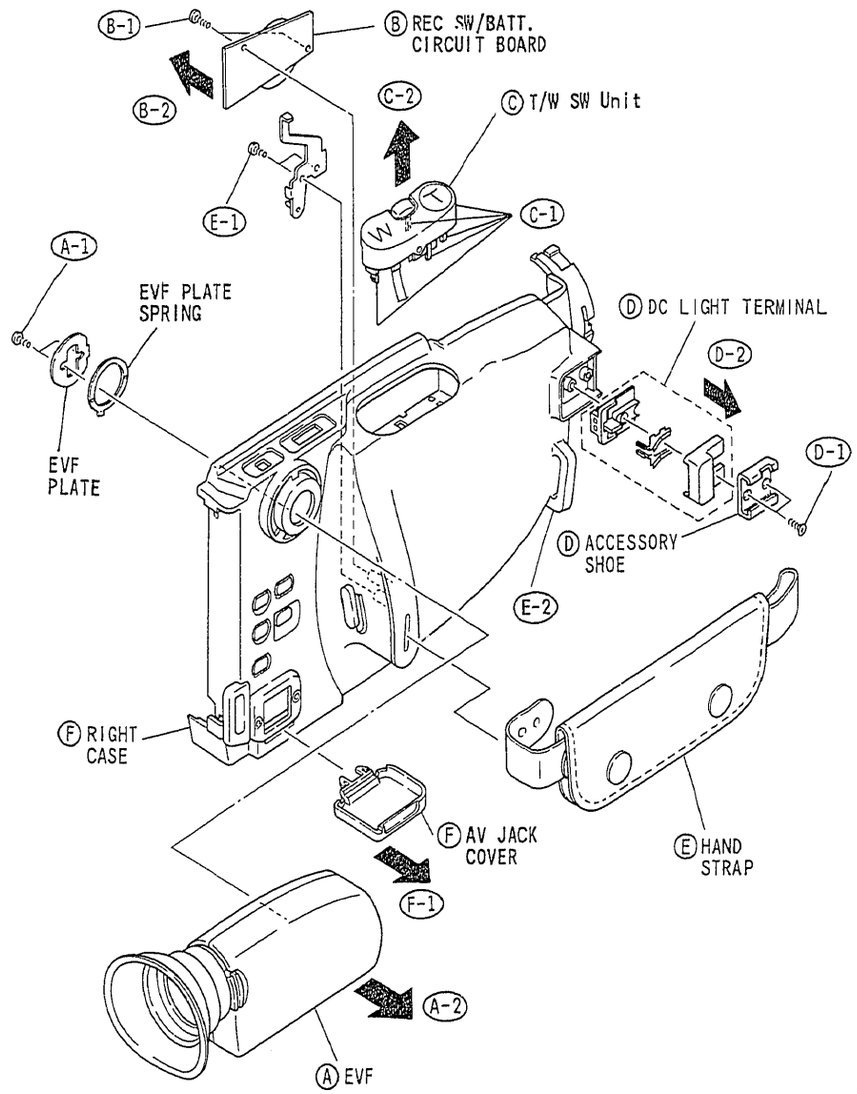


Fig. 3-3

3.1.3 Main Block (Main Circuit Board, VCR Frame, Tape Transpoart Mechanism), Camera Block, Microphone (MIC) and Left Case Removal

Components to remove in advance	Fig No.
• Cassette Lid	3-1, 2
• Lens Hood Holder	3-2
• Top Cover	3-2
• Open the right case	3-2

A. Main Block (Main Circuit Board, VCR Frame, Tape Transpoart Mechanism) (Fig. 3-4)

1) Remove three (3) screws.
2) Remove one (1) screw.
3) Disconnect two (2) connectors and two (2) flat cables.
4) Remove the main block in the direction of the arrow. (The main block (main circuit board) and camera block (sensor circuit board) are connected via a board-in type connector.)

Note: Be careful as the screw plate can be removed easily from the VCR frame when the main block has been removed.

B. Camera Block (Fig. 3-4)

Components to remove in advance	Fig No.
• Main Block	3-4

1) Remove three (3) screws.
2) Remove the camera block in the direction of the arrow.

C. Microphone (MIC) and Left Case (Fig. 3-4)

Components to remove in advance	Fig No.
• Main Block	3-4

1) Remove one (1) screw.
2) Remove the MIC in the direction of the arrow.

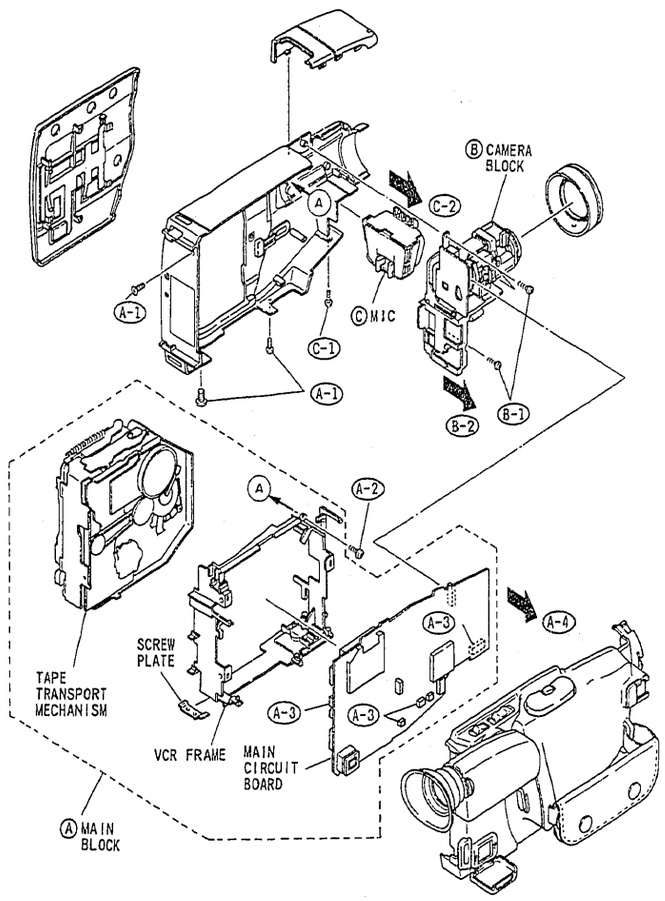


Fig. 3-4

3.1.4 Main Circuit Board, VCR Frame and Tape Transport Mechanism Removal

Components to remove in advance	Fig No.
• Cassette Lid	3-1, 2
• Lens Hood Holder	3-2
• Top Cover	3-2
• Open the right case	3-2
• Main Block	3-4

A. Main Circuit Board (Fig. 3-5)

1) Disconnect two (2) connectors and four (4) flat cables.
2) Remove one (1) screw.
3) Release four (4) tabs.

B. VCR Frame and Tape Transport Mechanism (Fig. 3-5)

Components to remove in advance	Fig No.
• Main Circuit Board	3-5

1) Remove one (1) screw.
2) Release three (3) engaged sections.
3) Remove the VCR frame in the direction of the arrow.

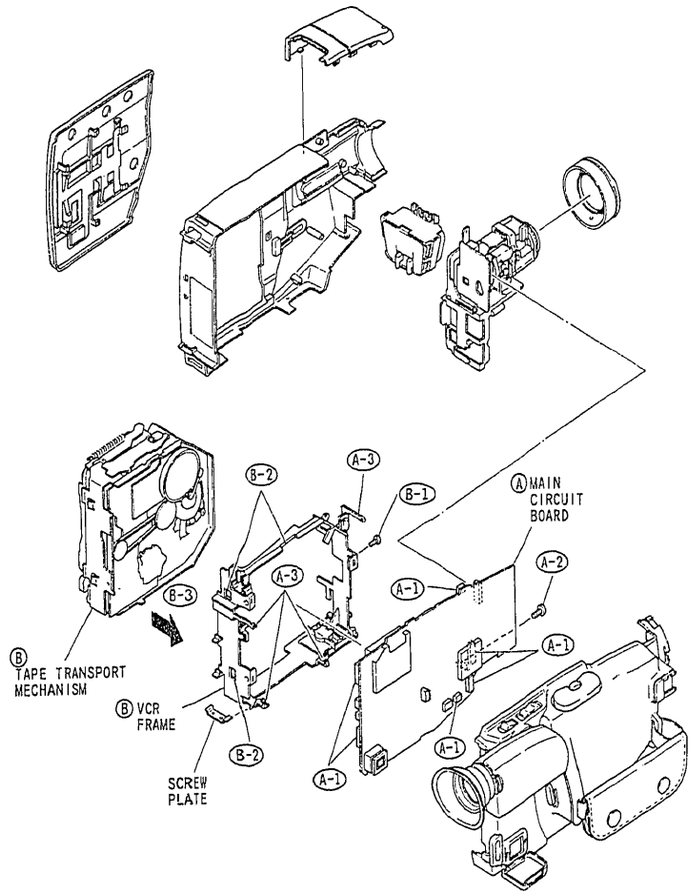


Fig. 3-5

3.1.5 H. (Horizontal) Gyro and V. (Vertical) Gyro Circuit Boards, Camera Frame, Wiring/Switch Unit, Lens Block and Sensor Circuit Board Removal

Components to remove in advance	Fig No.
• Cassette Lid	3-1, 2
• Lens Hood Holder	3-2
• Top Cover	3-2
• Open the right case	3-2
• Main Block	3-4
• Camera Block	3-4

A. H. (Horizontal) Gyro Circuit Board (Fig. 3-6)

Note: This item applies only to the products with the EIS (Electronic Image Stabilizer) function.

1) Disconnect one (1) flat cable.
2) Remove one (1) screw.
3) Remove the H. gyro circuit board.

B. V. (Vertical) Gyro Circuit Board (Fig. 3-6)

Note: This item applies only to the products with the EIS (Electronic Image Stabilizer) function.

1) Disconnect one (1) flat cable.
2) Remove one (1) screw.
3) Remove the V. gyro circuit board.

C. Camera Frame (Fig. 3-6)

Components to remove in advance	Fig No.
• H. Gyro Circuit Board	3-6
• V. Gyro Circuit Board	3-6

1) Remove three (3) screws.
2) Widen a section of the camera frame that is engaged with the lens slightly and remove the camera frame.

D. Wiring/Switch Unit (Fig. 3-6)

Components to remove in advance	Fig No.
• H. Gyro Circuit Board	3-6
• V. Gyro Circuit Board	3-6
• Cemera Frame	3-6

Note: This item applies only to the products with the EIS (Electronic Image Stabilizer) function.

1) Remove the wiring/switch unit from the camera frame. (The wiring/switch unit is fixed to the camera frame using double-sided adhesive tape.)

E. Lens Block (Fig. 3-6)

Components to remove in advance	Fig No.
• H. Gyro Circuit Board	3-6
• V. Gyro Circuit Board	3-6
• Cemera Frame	3-6

1) Remove two (2) screws.
2) Remove the lens block.

F. Sensor Circuit Board (Fig. 3-6)

Components to remove in advance	Fig No.
• H. Gyro Circuit Board	3-6
• V. Gyro Circuit Board	3-6
• Cemera Frame	3-6
• Lens Block	3-6

1) Remove two (2) screws.
2) Remove the sensor cover.

Note: When the sensor cover is removed, the crystal filter and sensor rubber are removed on their own. Be careful not to damage the crystal filter.

3) Remove the sensor guide and unsolder sixteen (16) points on the circuit board (terminals of the CCD image sensor).
4) Remove two (2) screws.

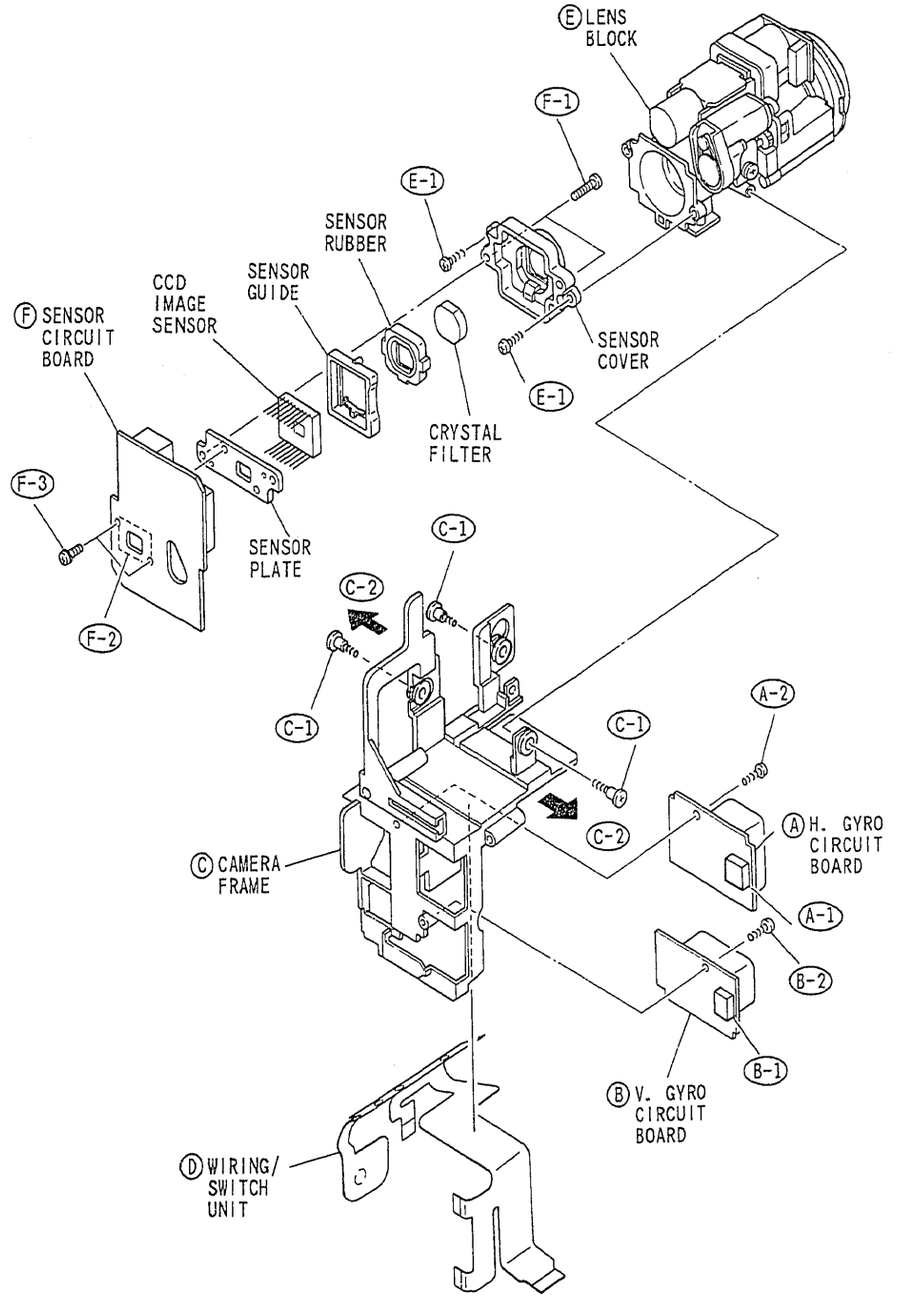


Fig. 3-6

3.2 ELECTRONIC VIEWFINDER (EVF) BLOCK

Note: Remove the EVF block in advance.

3.2.1 EVF Lens Block, EVF Left Case, EVF Right Case, EVF Circuit Board and CRT Removal

A. EVF Lens Block (Fig. 3-7)

1) Turn the EVF lens block in the direction of the arrow.
2) Remove the EVF lens block in the direction of the arrow.

B. EVF Left Case (Fig. 3-7)

1) Remove two (2) screws.
2) Remove the left case from the right case in the direction of the arrow.

C. EVF Right Case (Fig. 3-7)

Components to remove in advance	Fig No.
• EVF Left Case	3-7

1) Remove the EVF circuit board and CRT from the right case in the direction of the arrow.

D. EVF Circuit Board (Fig. 3-7)

Components to remove in advance	Fig No.
• EVF Left Case	3-7
• EVF Right Case	3-7

1. Disconnect connector and CRT socket.

E. CRT (Fig. 3-7)

Components to remove in advance	Fig No.
• EVF Left Case	3-7
• EVF Right Case	3-7
• EVF Circuit Board	3-7

1) Release two (2) tabs.

Note: When the CRT top and bottom covers are removed, the clear cover is removed on its own. Be careful not to damage the clear cover.

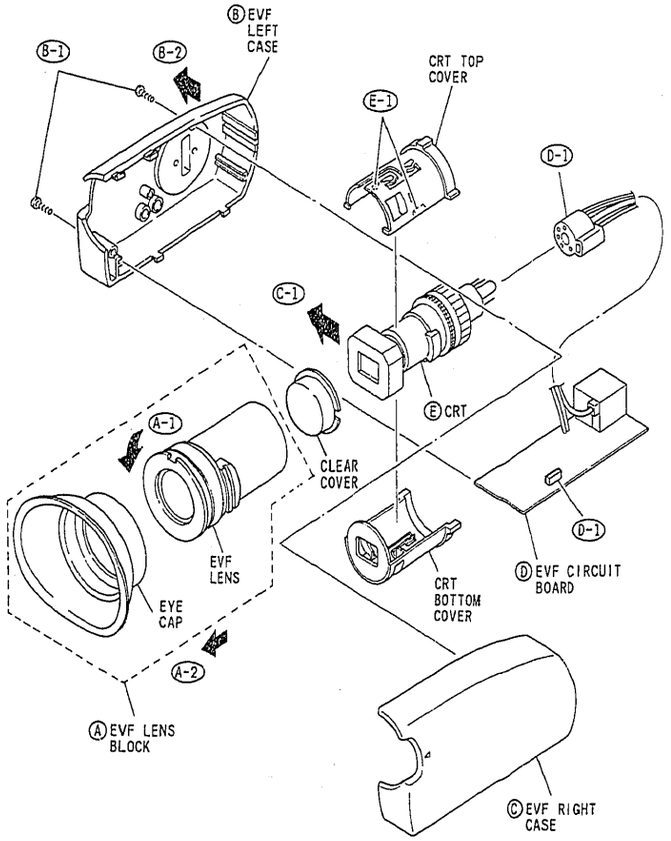


Fig. 3-7

3.3 LENS BLOCK

Note: Remove the lens block in advance.

3.3.1 Focus Motor, Zoom Motor, Iris Block, Position Sensor and Lens Flat Cable Removal

Note: Be careful not to damage the lens flat cable.

A. Focus Motor (Fig. 3-8)

1) Unsolder four (4) points.
2) Remove two (4) screws.
3) Remove the focus motor from the lens.

B. Zoom Motor (Fig. 3-8)

1) Remove one (1) screw.
2) Unsolder two (2) points.

C. Iris Block (Fig. 3-8)

1) Disconnect one (1) flat cable.
2) Remove one (1) screw.
3) Remove the iris block in the direction of the arrow.

Note: Be careful not to damage the iris blades. Also take care that foreign matter such as dust, etc. does not adhere to the iris blades.

D. Position Sensor (Fig. 3-8)

1) Remove one (1) screw.
2) Unsolder two (2) points.

E. Lens Flat Cable (Fig. 3-8)

Components to remove in advance	Fig No.
• Focus Motor	3-8
• Zoom Motor	3-8
• Position Sensor	3-8

1) Disconnect one (1) flat cable.

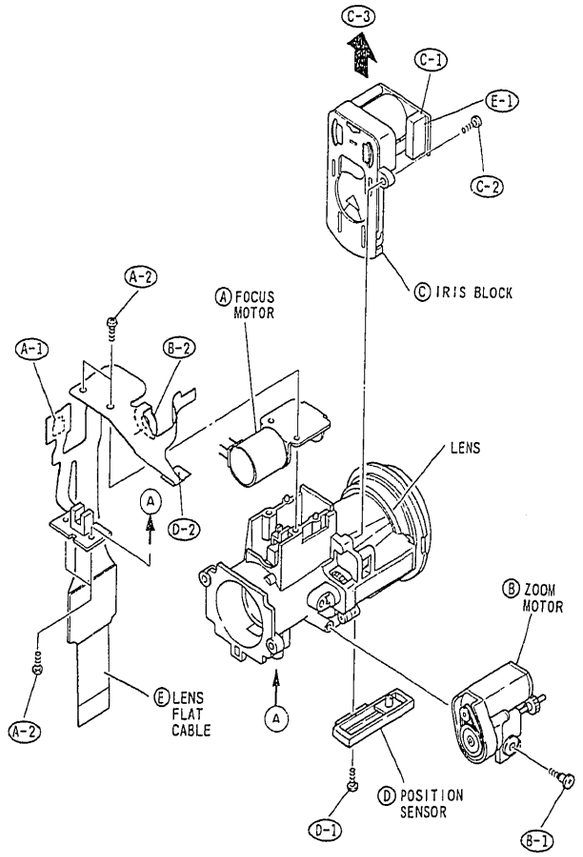


Fig. 3-8

4. TAPE TRANSPORT MECHANISM DISASSEMBLY

Note 1: Remove the tape transport mechanism in advance.
Note 2: Dismantle and reinstall the tape transport mechanism in the unloading/stop mode.

4.1 Cassette Holder, Motors, Sensors and Circuit Boards

4.1.1 Cassette Holder, Static Discharge Brush, Cylinder, Loading Motor, Loading Gears (1) and (2), Capstan Motor and Tape Cover Removal

A. Cassette Holder (Fig. 4-2)

1) Move the eject lever in the direction of the arrow and set the unit to the eject state.
2) Remove four (4) screws.

Note: Reinstall the cassette holder so that section (b) of the eject lock slider is inserted into section (a) of the eject lock arm.

B. Static Discharge Brush (Fig. 4-2)

1) Remove one (1) screw.

C. Cylinder (Fig. 4-2)

1) Remove two (2) screws.
2) Remove the cylinder in the direction of the arrow.

Note 1: Take care as the spring can be removed on its own when screw (c) holding the cylinder is removed.
Note 2: Do not touch video head tips with your fingers or tools, etc. during work.
Note 3: After reinstalling the cylinder, be sure to perform the following adjustment.
- 5. ADJUSTMENTS AFTER REPLACING THE CYLINDER in CHAPTER 3

D. Loading Motor, Loading Gears (1) and (2) (Fig. 4-2)

Note: Although the loading motor can be removed with the cassette holder attached, it is better to remove the holder to make the work easier.

1) Remove two (2) screws.
2) Remove the loading motor and loading gears (1) and (2) in the direction of the arrow.

Note: Perform the following adjustments after reinstalling the loading motor and loading gears (1) and (2).
- 3. PHASE MATCHING ASSEMBLY in CHAPTER 3

E. Capstan Motor (Figs. 4-1, 4-2)

Components to remove in advance	Fig No.
• Loading Motor and Loading Gears (1) and (2)	4-2

1) Remove three (3) screws. (See Fig. 4-2)
2) Release three (3) tabs. (See Fig. 4-1)
3) Remove the capstan motor in the direction of the arrow.

F. Tape Cover (Fig. 4-2)

1) Release two (2) tabs.

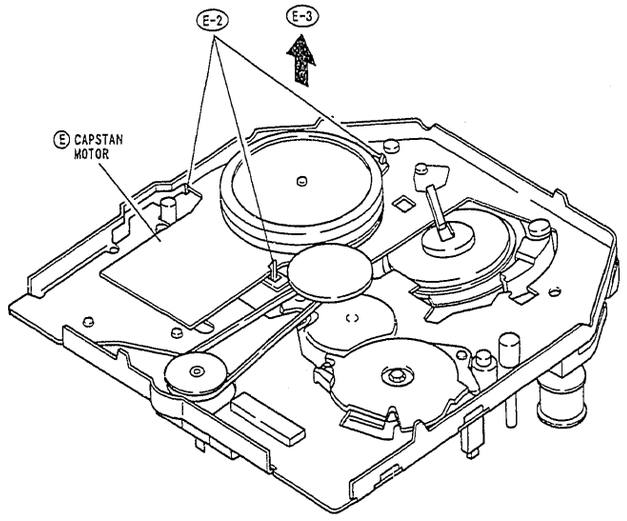


Fig. 4-1

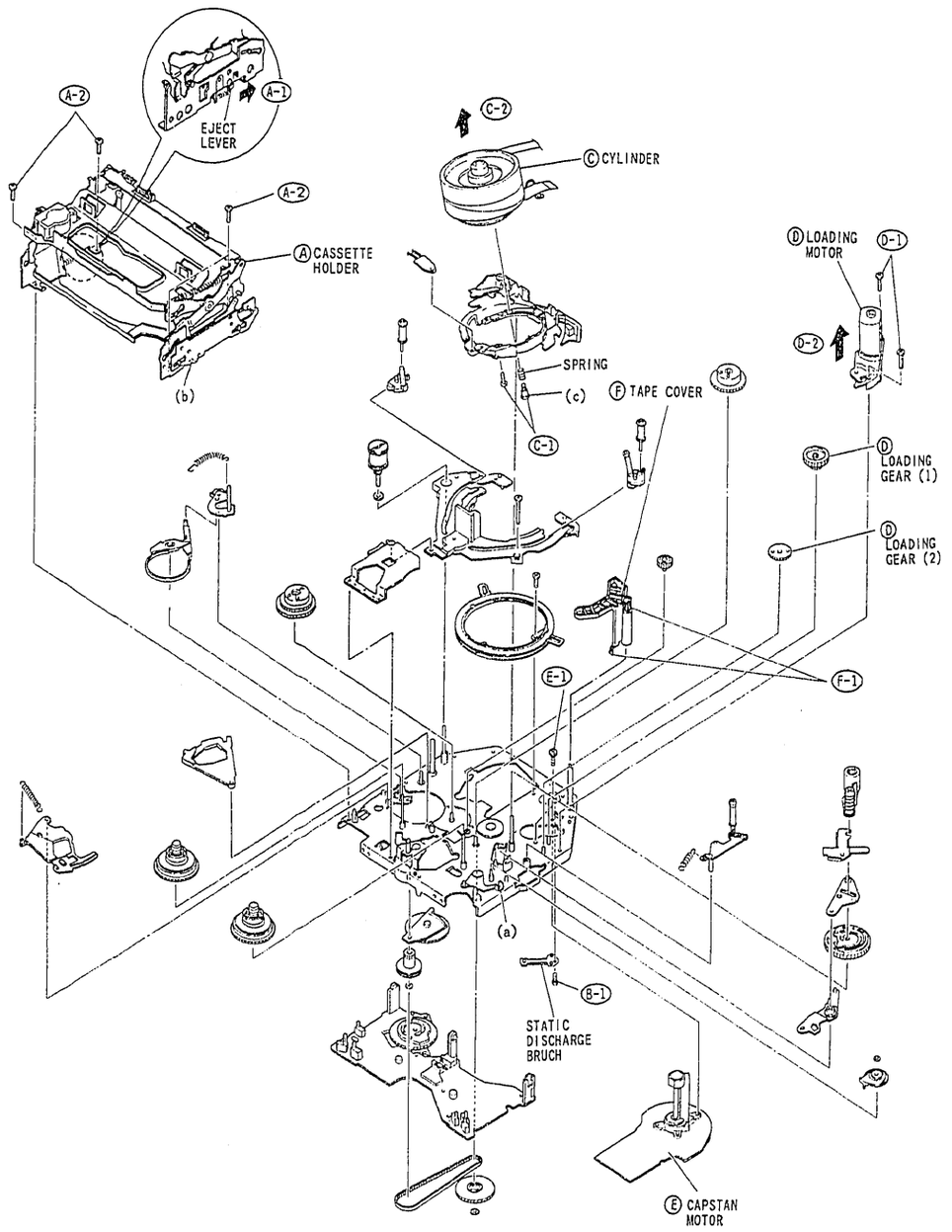


Fig. 4-2

4.1.2 Pulley Gear, Center Gear, Capstan Belt, Trouble Sensor Circuit Board, Dew Sensor, Pressure Roller, Pull-Out Pole, Pressure Roller Drive Arm, Pressure Roller Cam Gear and Take-up Reel Brake Removal

A. Pulley Gear, Center Gear and Capstan Belt (Fig. 4-4)

Components to remove in advance	Fig No.
• Loading Motor and Loading Gears (1) and (2)	4-2
• Capstan Motor	4-1,2

1) Remove one (1) washer.
2) Remove one (1) washer.
3) Remove the center gear and pulley gear together with the capstan belt.

B. Trouble Sensor Circuit Board (Fig. 4-4)

Components to remove in advance	Fig No.
• Loading Motor and Loading Gears (1) and (2)	4-2
• Capstan Motor	4-1,2
• Pulley Gear, Center Gear and Capstan Belt	4-4

Note: The following sensors and switches are installed on the Trouble Sensor circuit board.
- End LED
- Supply and Take-up End Sensors
- Supply and Take-up Reel Sensors
- Safety Tab Switch
- Tape Select Switch
- Hi-8 Tape Switch
- Cassette Holder Switch
- Mechanism State Switch

1) Remove the five (5) screws.

Note: Perform the following adjustments after reinstalling the Trouble Sensor circuit board.
- 3. PHASE MATCHING ASSEMBLY in CHAPTER 3

C. Dew Sensor (Fig. 4-4)

Note: Although the dew sensor can be removed with the cassette holder attached (in the eject state), it is better to remove the holder to make the work easier.

1) Remove one (1) screw.

D. Pressure Roller (Fig. 4-4)

Components to remove in advance	Fig No.
• Cassette Holder	4-2

1) Remove one (1) washer.
2) Pull out the pressure roller from the pressure roller shaft.

Note 1: Reinstall the pressure roller so that pin (a) of the pressure roller drive arm is inserted into groove (b) in the pressure roller.

Note 2: Do not remove the spring of the pressure roller.

E. Pull-Out Pole, Pressure Roller Drive Arm and Pressure Roller Cam Gear (Figs. 4-3, 4-4)

Components to remove in advance	Fig No.
• Cassette Holder	4-2
• Pressure Roller	4-4

1) Remove one (1) screw. (See Fig. 4-4)
2) Move the pressure roller plate in the direction of the arrow and remove the pressure roller plate.
3) Remove the spring.

Note 1: Reinstall the pull-out pole so that pin (a) of this pole is inserted into groove (b) in the surface of the pressure roller cam gear. (See Figs. 4-3, 4-4)

Note 2: Reinstall the pressure roller drive arm so that pin (c) of this arm is inserted into groove (d) in the surface of the pressure roller cam gear. (See Figs. 4-3, 4-4)

Note 3: Reinstall the pressure roller cam gear so that pin (e) of the cassette holder lock arm is inserted into groove (f) on the back of the pressure roller cam gear. (See Figs. 4-3, 4-4)

F. Take-up Reel Brake (Fig. 4-4)

Components to remove in advance	Fig No.
• Cassette Holder	4-2

1) Remove one (1) washer.

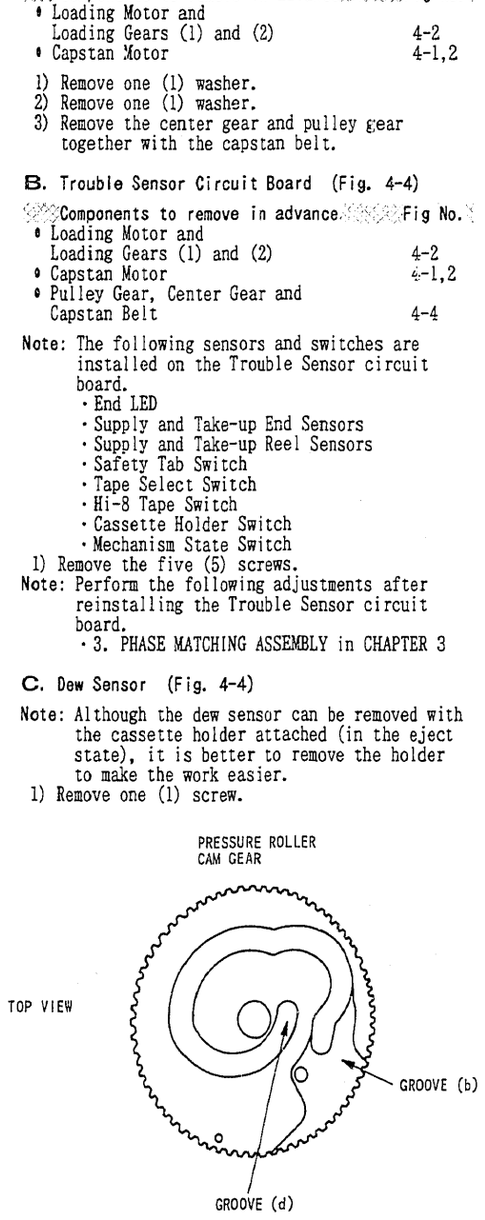


Fig. 4-3

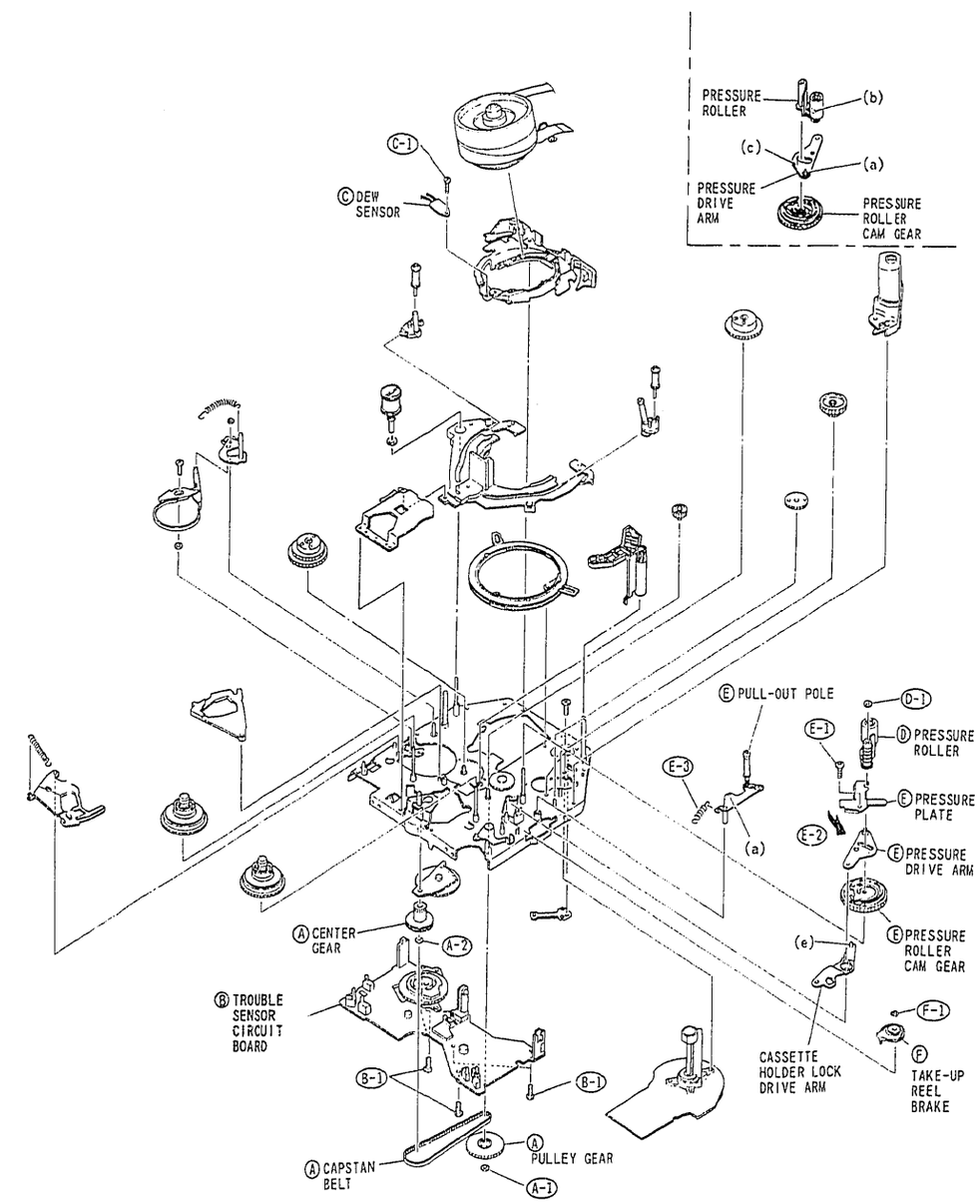


Fig. 4-4

4.2 Others Parts

4.2.1 Supply Guide Roller, Take-up Guide Roller, Impedance Roller, Chassis Plate and Take-up Reel Disk Removal

Components to remove in advance — Fig No.
- Cassette Holder — 4-2

A. Supply Guide Roller (Fig. 4-5)

1) Loosen one (1) screw.
2) Use the special screwdriver (to adjust the guide roller) to turn the top of the supply guide roller counterclockwise.

Note: Perform the following adjustment after reinstalling the supply guide roller.
- 4.4 Supply/Take-up Guide Roller Height Adjustment

B. Take-up Guide Roller (Fig. 4-5)

1) Loosen one (1) screw.
2) Use the special screwdriver (to adjust the guide roller) to turn the top of the take-up guide roller counterclockwise.

Note: Perform the following adjustment after reinstalling the take-up guide roller.
- 4.4 Supply/Take-up Guide Roller Height Adjustment

C. Impedance Roller (Fig. 4-5)

1) Use a flat-bladed screwdriver to turn the top of the impedance roller counterclockwise to remove it.

Note: Perform the following adjustment after reinstalling the impedance roller.
- 4.3 Pull-out Pole and Impedance Roller Height Check/Adjustment

D. Chassis Plate (Fig. 4-5)

1. Remove three (3) screws.

E. Take-up Reel Disk (Fig. 4-5)

Components to remove in advance — Fig No.
- Chassis Plate — 4-5

1) Pull out the take-up reel disk from the take-up reel disk shaft.

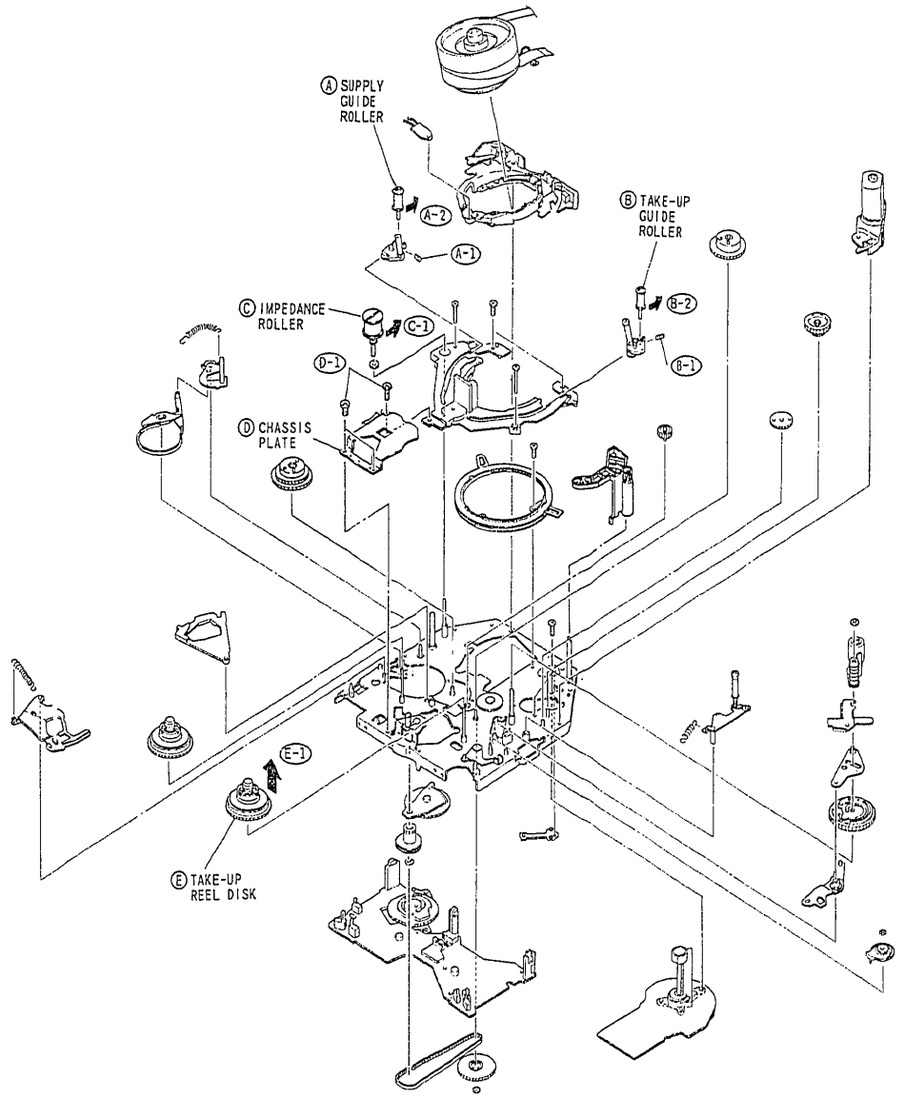


Fig. 4-5

4.2.2 Eject Lock Drive Arm, Tension Arm, Tension Band, Supply Reel Disk, Eject Arm, Supply Reel Brake Reel Drive Idler and Cylinder Base Removal

Components to remove in advance	Fig No.
• Cassette Holder	4-2

A. Eject Lock Drive Arm (Fig. 4-6)

Components to remove in advance	Fig No.
• Pressure Roller	4-4
• Pull-out Pole, Pressure Roller Drive Arm and Pressure Roller Cam Gear	4-4
• Take-up Reel Brake	4-4
• Chassis Plate	4-5
• Take-up Reel Disk	4-5

1) Remove the eject lock drive arm from the eject lock arm. (See Fig. 4-6)

Note: Reinstall the eject lock drive arm so that pin (b) of the eject lock arm is inserted into hole (a) in the eject lock drive arm.

B. Tension Arm and Tension Band (Fig. 4-6)

Components to remove in advance	Fig No.
• Chassis Plate	4-5
• Take-up Reel Disk	4-5

1) Remove the tension spring from the chassis and tension arm.
2) Remove one (1) screw.
3) Remove one (1) washer.
4) Release two (2) tabs and remove the tension band from the tension arm.

Note: Perform the following adjustment after reinstalling the tension arm and tension band.
- 4.1 Tension Pole Position/Tension Torque Adjustments

C. Supply Reel Disk and Eject Arm (Fig. 4-6)

Components to remove in advance	Fig No.
• Chassis Plate	4-5
• Take-up Reel Disk	4-5
• Tension Arm and Tension Band	4-6

1) Pull out the supply reel disk from the supply reel disk shaft.
2) Remove the eject arm.

Note: Reinstall the eject arm so that pin (c) of the arm is inserted into groove (d) in the mechanism state switch.

D. Supply Reel Brake (Fig. 4-6)

Components to remove in advance	Fig No.
• Chassis Plate	4-5
• Take-up Reel Disk	4-5
• Tension Arm and Tension Band	4-6

1) Remove the spring between the supply reel brake and chassis.
2) Remove the supply reel brake.

E. Reel Drive Idler (Fig. 4-6)

Components to remove in advance	Fig No.
• Loading Motor and Loading Gears (1) and (2)	4-2
• Capstan Motor	4-2
• Pulley Gear, Center Gear and Capstan Belt	4-4
• Chassis Plate	4-5
• Take-up Reel Disk	4-5
• Tension Arm and Tension Band	4-6
• Supply Reel Disk and Eject Arm	4-6
• Supply Reel Brake	4-6

1) Remove the reel drive idler in the direction of the arrow.

Note: When removing the reel drive idler, take care not to lose the washer between the idler and chassis.

F. Cylinder Base (Fig. 4-6)

Components to remove in advance	Fig No.
• Static Discharge Brush	4-2
• Cylinder	4-2
• Tape Cover	4-2
• Dew Sensor	4-4

1) Remove three (3) screws.

Note: The cylinder base can be removed from the chassis with the cylinder attached.

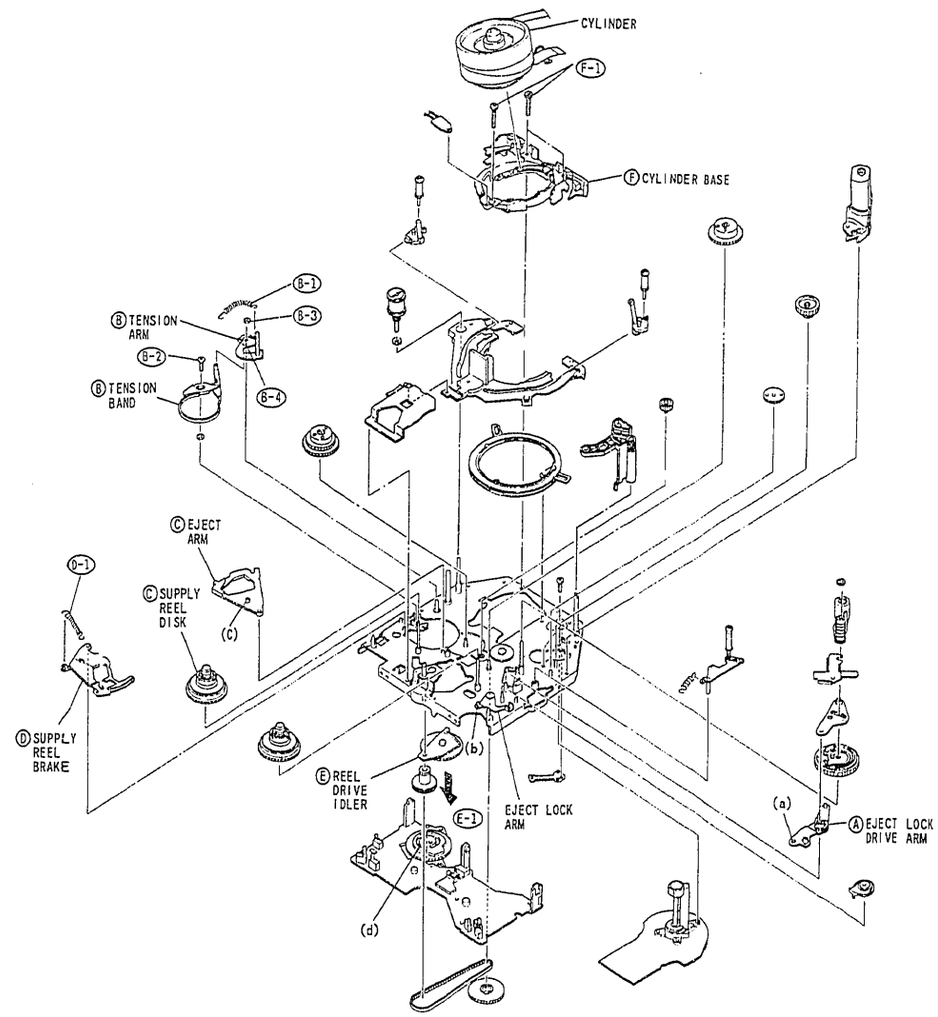


Fig. 4-6

4.2.3 Guide Roller Rail, Supply and Take-up Guide Roller Bases, Loading Relay Gears (1), (2), Take-up and Supply Loading Rings and Loading Relay Gear (3) Removal

Components to remove in advance	Fig No.
• Cassette Holder	4-2
• Tape Cover	4-2
• Dew Sensor	4-4
• Pressure Roller	4-4
• Supply Guide Roller	4-5
• Take-up Guide Roller	4-5
• Impedance Roller	4-5
• Chassis Plate	4-5
• Take-up Reel Disk	4-5
• Tension Arm and Tension Band	4-6
• Cylinder Base (with the cylinder attached)	4-6

Note 1: It is not necessary to remove the supply and take-up guide rollers when removing only the guide roller rail or when removing the guide roller bases with the guide rollers assembled.
Note 2: The cylinder base can be removed from the chassis with the cylinder attached.

A. Guide Roller Rail (Fig. 4-7)

1) Remove two (2) screws.
2) Remove the guide roller rail and guide roller bases from the chassis.

Note: Perform the following adjustment after reinstalling the guide roller rail.
・4.4 Supply/Take-up Guide Roller Height Adjustment

B. Supply Guide Roller Base (Fig. 4-7)

Components to remove in advance	Fig No.
• Guide Roller Rail	4-7

1) Remove the supply guide roller base along the groove in the rail in the direction of the arrow.

Note: Perform the following adjustment after reinstalling the supply guide roller base.
・4.4 Supply/Take-up Guide Roller Height Adjustment

C. Take-up Guide Roller Base (Fig. 4-7)

Components to remove in advance	Fig No.
• Guide Roller Rail	4-7

1) Remove the take-up guide roller base along the groove in the rail in the direction of the arrow.

Note: Perform the following adjustment after reinstalling the take-up guide roller base.
・4.4 Supply/Take-up Guide Roller Height Adjustment

D. Loading Relay Gear (1) (Fig. 4-7)

Components to remove in advance	Fig No.
• Guide Roller Rail	4-7

1) Remove one (1) washer.

Note: Perform the following adjustment after reinstalling loading relay gear (1).
・3. PHASE MATCHING IN ASSEMBLY in CHAPTER 3.

E. Loading Relay Gear (2) (Fig. 4-7)

Components to remove in advance	Fig No.
• Guide Roller Rail	4-7

1) Remove loading relay gear (2) from the chassis.

Note: Perform the following adjustment after reinstalling loading relay gear (2).
・3. PHASE MATCHING IN ASSEMBLY in CHAPTER 3.

F. Loading Ring (Fig. 4-7)

Components to remove in advance	Fig No.
• Guide Roller Rail	4-7

1) Remove one (1) screw.

Note: Perform the following adjustment after reinstalling the loading ring.
・3. PHASE MATCHING IN ASSEMBLY in CHAPTER 3.

G. Loading Relay Gear (3) (Fig. 4-7)

Components to remove in advance	Fig No.
• Guide Roller Rail	4-7

1) Remove loading relay gear (3) from the chassis.

Note: Perform the following adjustment after reinstalling loading relay gear (3).
・3. PHASE MATCHING IN ASSEMBLY in CHAPTER 3.

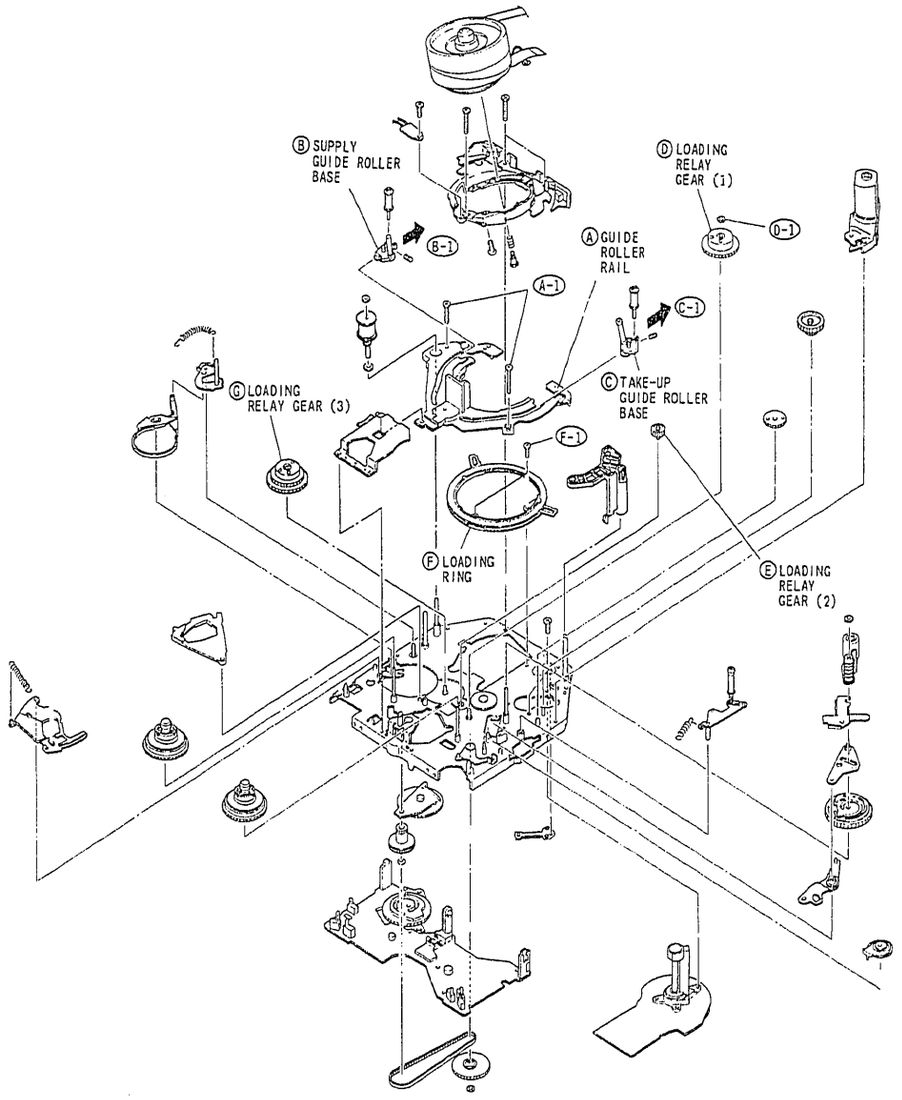
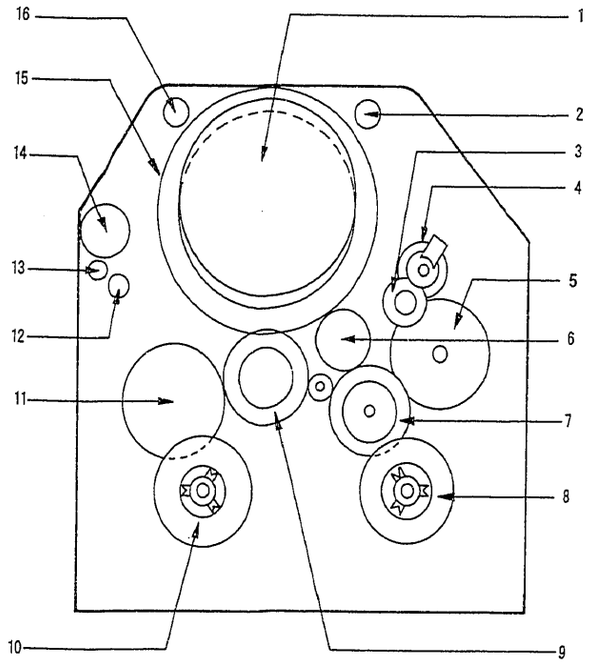


Fig. 4-7

CHAPTER 3

MECHANISM ADJUSTMENT

1. MAJOR MECHANICAL COMPONENTS



1. Cylinder
2. Take-up Guide Roller
3. Pressure Roller
4. Capstan Motor
5. Loading Cam Gear
6. Loading Relay Gear (4)
7. Loading Relay Gear (1)
8. Take-up Reel Disk
9. Loading Relay Gear (3)
10. Supply Reel Disk
11. Mechanism State Switch
12. Supply Guide Post
13. Tension Pole
14. Impedance Roller
15. Loading Ring
16. Supply Guide Roller

Fig. 1-1 Tape Transport Mechanism (Top View)

2. BEFORE STARTING ADJUSTMENT

- Be sure to set the camera/recorder to the unloading/stop mode when dismantling the tape transport block.
- Do not re-use washers once they have been removed.
- Remove the components shown below beforehand, referring to CAPTER 2 DISASSEMBLY.

Components to remove in advance	Fig. No
· Lens Hood Holder	3-2
· Top Cover	3-2
· Open the Right Case	3-2
· Main Block	3-4
· Main Circuit Board	3-5
· VCR Frame and Tape Transport Mechanism	3-5

- With this camera/recorder, mechanical adjustments (tape transport system check/adjustment) can be done with the unassembled VCR block (without connecting the camera block).
- To set the camera/recorder to the playback mode without loading a cassette, shut off the light striking the end LEDs in the chassis and press the playback button. (Shut off the light striking the end LEDs in the eject state.)

3. PHASE MATCHING IN ASSEMBLY

Caution 1: Here, the phases of all components are aligned in the unloading/stop mode. Be sure to set the camera/recorder to the unloading/stop mode before dismantling the tape transport block.
Caution 2: Be sure to check and adjust when reinstalling the mechanism state switch, loading motor, gears and loading ring.

3.1 Mechanism State Switch [Mecha. State Sw] (Fig. 3-1)

●Procedure of phase matching in assembly
1) Align mark (A) and mark (a) on the mecha. state sw and mecha. state sw case.

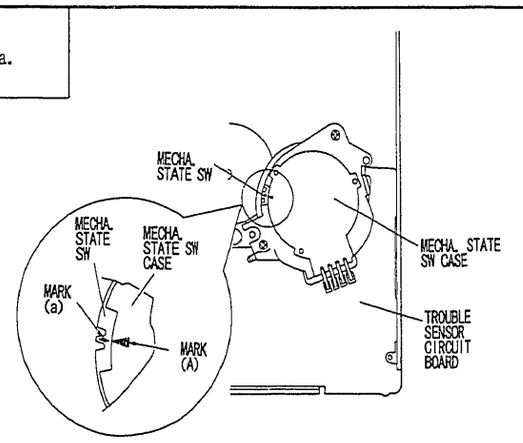


Fig. 3-1

3.2 Loading Gears and Loading Ring (Figs. 3-2, 3-3)

Caution: Be careful that the phase of the mechanism state switch which was matched in item 3-1 does not drift.

●Procedure of phase matching in assembly
1) Align the markings of the loading ring and gears as shown in Fig. 3-2.
Caution: When reinstalling the pressure roller cam gear, set the eject lock arm to the position shown in Fig. 3-3 and check that pin (K) is inserted in groove (k) in the back of the pressure roller cam gear.
Advice: If it is difficult to see marking (E) on the lower loading ring, match the phase by the following procedure.
① Set the upper and lower loading rings to the state shown in Fig. 3-2. (Watch the guide roller fixing section.)
② Move the upper and lower loading rings so that holes (I) overlap each other.
③ If holes (I) overlap each other, the phase of the loading ring is correct.

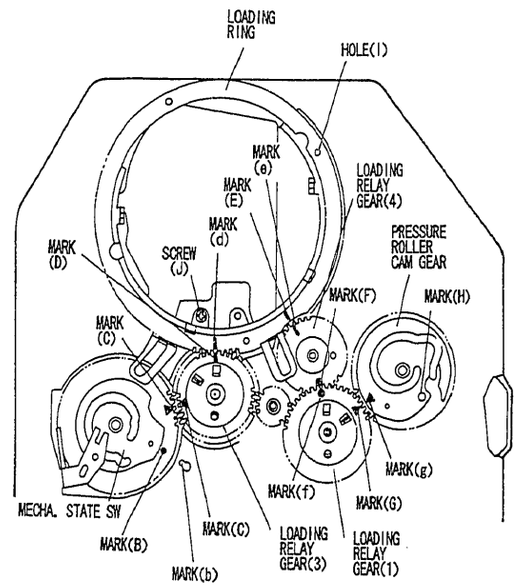


Fig. 3-2

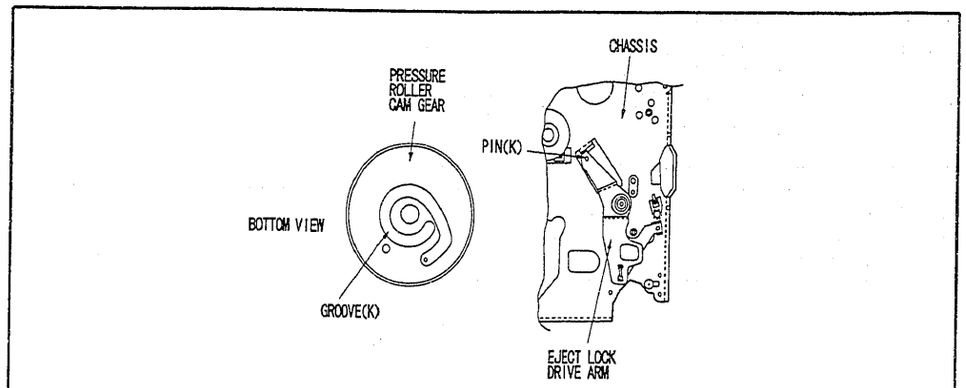


Fig. 3-3

4. TAPE TRANSPORT SYSTEM CHECK/ADJUSTMENT

The tape transport system is a generic term for the path from the supply reel disk to the take-up reel disk via the cylinder. The tape transport components, especially the components which come into direct contact with the tape, should be kept clean without damage, dust or oil, etc. adhering to the contact surfaces. The tape transport system is adjusted before shipment from the factory, so perform adjustments only when components of the transport system are replaced or adjustments of the transport system have drifted.

4.1 Tension Pole Position/Tension Torque Adjustments (Fig. 4-1)

Caution: Be sure to perform these adjustments after reinstalling the tension arm, tension band and tension spring.

Test equipment/jigs	Test equipment/jigs connection points	State of VCR	Adjustment point
		• Shut off the light striking the end LEDs and set to the playback mode without loading a cassette	• Tension band holder
• Cassette torque meter (SRK-8T-112)	• Load a cassette torque meter	• Set to the playback mode.	• Tension spring

Adjustment procedure

Tension pole position adjustment (Fig. 4-1)

1) Hook the tension spring to position (B) of the supring holder.
2) Loosen screw (D) holding tension band holder (E).
3) Adjust the position of tension band holder (E) so the relationship between the hole in the tension arm and guide roller rail is as shown in Fig. 4-1.
4) Tighten screw (D).
5) Perform playback and stop several times and check that the specification in step 3) is satisfied. If it is not satisfied, re-adjust the tension pole position.

Tension torque adjustment (Fig. 4-1)

1) Hook the tension spring to position (B) of the supring holder.
2) Set the tension torque on the supply side to 4.5 - 5.5 g-cm.
   If it is more than 5.6 g-cm: Move the tension spring to position (A) of the spring holder.
   If it is less tha 4.4 g-cm: Move the tension spring to position (C) of the spring holder.

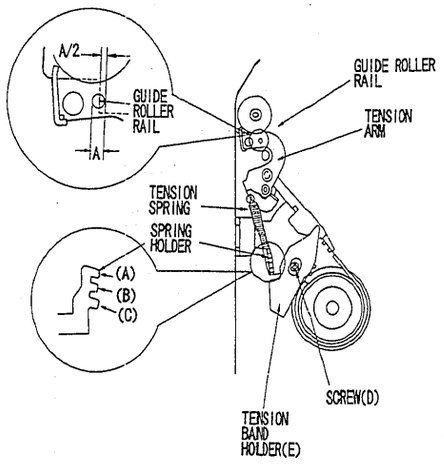


Fig. 4-1

4.2 Pull-out Pole and Impedance Roller Height Check/Adjustment (Figs. 4-2, 4-3)

Caution: Be sure to check this item after reinstalling the pull-out arm and impedance roller.
Basically, the pull-out pole height should not be adjusted.
Adjust the pull-out height only if it is abnormal.

Test equipment/jigs	Test equipment/jigs connection points	State of VCR	Adjustment point
• Blank tape (P6-120) • Special driver		• Load a blank tape and set to the playback mode.	• Top of pull-out pole

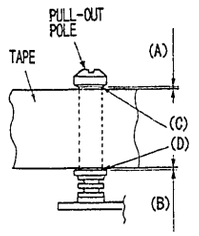
Checking/adjustment procedure

Pull-out Pole

1) Check that the tape is running at the center of the pull-out arm. If it is not, adjust the height of the arm.
2) Set to the reverse search mode.
3) Check that the tape is running between (C) and (D) and also no curling or creasing occurs.
4) If step 3) cannot be confirmed, fine adjust the height of the pull-out arm.

Impedance Roller

1) Check that there is no curling or creasing of the tape occurs around the impedance roller. If curling or creasing occurs, check the installation of the impedance roller.



(A) = (B)

Fig. 4-2

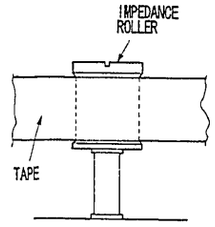


Fig. 4-3

4.3 Supply/Take-up Guide Roller Height Adjustment (Figs. 4-4, 4-5)

Caution: Be sure to check this item after reinstalling the supply guide roller and take-up guide roller.
Basically, the height of the supply/take-upguide rollers should not be adjusted.
Adjust these heights only if they are abnormal.

Test equipment/jigs	Test equipment/jigs connection points	State of VCR	Adjustment point
• Alignment tape • Oscilloscope • ATF-R jig • Special driver	• PG601 on Main board • TP1 (SW30) on ATF-R jig • TP2 (GND) on ATF-R jig • TP3 (FM OUT) on ATF-R jig	• Connect the ATF-R jig to PG601. • ATF-R jig (SW1: OFF, SW3: ON, RT1: mechanical center)	• Top of guide rollers

Adjustment procedure

Caution: Before performing this adjustment, refer to Fig. 7-1 and modify the ATF-R jig. Connect the ATF-R jig before supplying power.

1) Connect an oscilloscope to TP3 on the ATF-R jig.
2) Synchronize the oscilloscope with TP1 (SW30) on the ATF-R jig.
3) Set the osilloscope to (+) slope.
4) Load an alignment tape that has been completely rewound and set to the playback mode.

Take-up Guide Roller

5) Press SW2 on the ATF-R jig and hold it, then perform the fllowing steps.
6) Adjust the height of the take-up guide roller so the waveform is flat.
7) Set SW1 on the ATF-R jig to ON.
8) Turn RT1 on the ATF-R jig and check that the waveform always changes while being flat.
9) If step 8) cannot be confirmed, adjust the height of the guide roller precisely so the specifications in step 8) are satisfied.

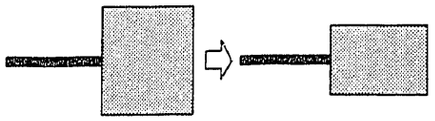


Fig. 4-4

◆Supply Guide Roller

10) Set the oscilloscope to (-) slope.
11) Turn RT1 on the ATF-R jig so the waveform is shaped as shown in Fig. 4-5.
12) Adjust the voltage level control of the oscilloscope so that portion (A) of the waveform is set to 3 graduations.
13) Adjust the height of the supply guide roller so the minimum amplitude of the waveform is set to 2.5 ± 0.3 graduations.

Caution: After adjustment is completed, be sure to reverse the modification to ATF-R jig.

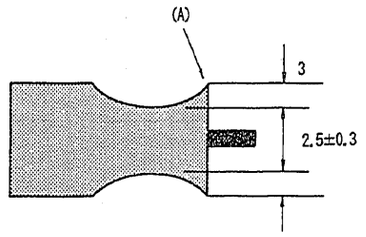


Fig. 4-5

5. ADJUSTMENT AFTER REPLACING THE CYLINDER (Figs. 5-1, 5-2)

When the cylinder is replaced, the height relative to the guide roller drifts, therefore the tape transport system and servo circuit should be adjusted. Check and adjust in the following order.

Test equipment/jigs	Test equipment/jigs connection points	State of VCR	Adjustment point
· Alignment tape · Oscilloscope · ATF-R jig · Special driver	· PG601 on Main board · TP1 (SW30) on ATF-R jig · TP2 (GND) on ATF-R jig · TP3 (FM OUT) on ATF-R jig	· Connect the ATF-R jig to PG601. · ATF-R jig (SW1: OFF, SW3: ON, RT1: mechanical center)	· Top of guide rollers

●Adjustment procedure

Caution: Before performing this adjustment, refer to Fig. 7-1 and modift the ATF-R jig. Connect the ATF-R jig before supplying power.

1) Connect an oscilloscope to TP3 on the ATF-R jig.
2) Synchronize the oscilloscope with TP1 (SW30) on the ATF-R jig.
3) Set the oscilloscope to (+) slope.
4) Load an alignment tape that has been completely rewound and set to the playback mode.
5) Press SW2 on the ATF-R jig and hold it, then perform the following steps.
6) Set SW1 on the ATF-R jig to ON.
7) Turn RT1 on the ATF-R jig and check that the waveform always changes while being flat. (See Fig. 5-1) If this cannot be confirmed, adjust the height of the take-up guide roller, referring to "4.4 Supply/Take-up Guide Roller Height Adjustment".
8) Set the oscilloscope (-) slope.
9) Turn RT1 on the ATF-R jig so the waveform is shaped as shown in Fig. 5-2.
10) Adjust the voltage level control of the oscilloscope so that position (A) of the waveform is set to 3 graduations.
11) Check that the minimum amplitude of the waveform is set to 2.5 ± 0.3 graduations. If this cannot be confirmed, adjust the height of the supply guide roller, referring to "4.4 Supply/Take-up Guide Roller Height Adjustment".
12) Perform the following electrical adjustments, referring to CHAPTER 4.
    · Head switching point
    · Record luminance/chroma level adjustment

Caution: After adjustment is completed, be sure to reverse the modification to ATF-R jig.

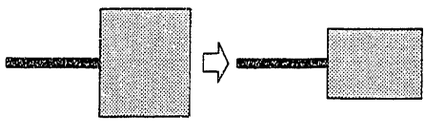


Fig. 5-1

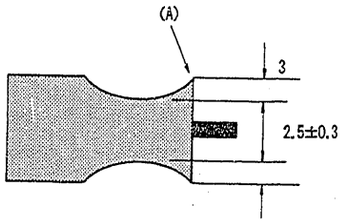


Fig. 5-2

6. CHECKING THE TORQUE

There are two types of cassette torque meter.
Choose the applicable one for the measurement to be performed.

Item	VCR mode	Measured reel disk	Torque value	Torque cassette used
Take-up torque	Playback	Take-up	7-13 g-cm	SRK-8T-112 SRK-8T-132
Rewind torque	Reverse search	Supply	25-73 g-cm	SRK-8T-132
Take-up brake torque	Reverse search to stop	Take-up	10 g-cm ro more	SRK-8T-112 SRK-8T-132
Slack removal torque	Unloading	Supply	25-37 g-cm	SRK-8T-132

7. MODIFICATION TO ATF-R JIG (Fig. 7-1)

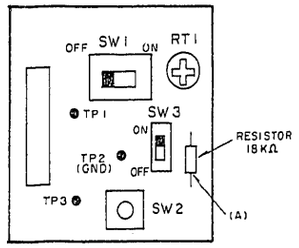
Caution: The ATF-R jig must be modified for the following adjustments. After completing these, be sure to reverse the modification.
- 4.4 Supply/Take-up Guide Roller Height Adjustment
- 5. ADJUSTMENT AFTER REPLACING THE CYLINDER

●Procedure

1) Shout terminal (A) of the resistor and TP2 (GND) on the ATF-R jig.

Note: This modification makes SW2 on the ATF-R jig a PCM area observation switch.

Caution: Use a shorting clip, etc. to short the parts; this can be removed easily after adjustment is completed. A modification is also necessary in the same way when the ATF jig is used.



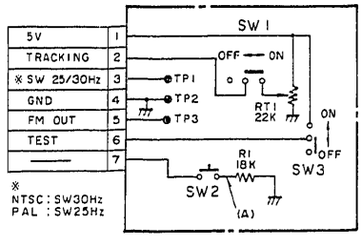


Fig. 7-1

MECHANICAL BLOCK MAINTENANCE/INSPECTION PROCEDURE

1. Required Maintenance/Inspection

The mechanical block (tape transport system) in an 8mm video camera/recorder uses very precise components. If any of these components is worn or dirty, the symptoms will be the same as if the component is defective.
To ensure a good picture, the tape transport system must be cleaned and lubricated periodically, and worn-out components must be replaced.

2. Scheduled Maintenance/Inspection

Schedules for maintenance and inspection are not fixed because they vary according to the way in which and what for the customer uses the camera/recorder and the environment in which it is used. But, in general home use, a good picture will be maintained if inspection and maintenance are done every 500 hours.
Refer to Table 4 for the components which must be maintained and inspected and the details of the maintenance/inspection schedules.
Lubricate oil when replacing components.

Table 1 Average hours used per day and maintenance/inspection schedules

Average hours per day	About 6 months ↓	About 9 months ↓	About 18 months ↓
One hour	▨▨▨▨▨▨▨▨▨▨		
Two hours	▨▨▨▨▨		
Three hours	▨		

3. Check before Judging that Unit is Faulty

If the faults in Table 2 occur during playback, they may be remedied when the tape transport system is cleaned and lubricated. Check the conditions of cleanliness of the unit and the need for lubrication.
If from that you determine that the unit is ready for inspection and maintenance, check the components shown in Table 2.

Table 2 Defective Phenomena and Inspection Locations

Defective phenomenon during play	Inspection location
Poor picture S/N, no color	Dirt on vide head or worn video head
Tape does not run or tape is slack	Dirt on pressure roller, in tape transport system or/and on cylinder
Low volume or sound distorted	Dirt on video head or worn video head

4. Tools Needed for Inspection and Maintenance

(1) Head cleaning kit
(2) VTR oil kit
(3) Ethyl alcohol (ethanol)
(4) Gauze
(5) Cleaning tape Maxell 8M-CL MCA (dry type)

Table 3 Locations for Greasing and Lubricating using the Oil Kit

Name	Using locations
Sonic Slidas oil (#1600)	Lubricate low-speed rotating sections
Froil (G31-SAY)	Grease metal or molded sections subject to light load
Lock paint	Fix adjustment screws and nuts
Pan motor oil	Not used
Hitazol	Not used

The above VTR kit and head cleaning kit are those used conventionally (for VHS and VHS-C recorders). Always use these kits for maintenance.

5. Maintenance Procedures

5-1. Cleaning

(1) Cleaning video heads

First use a specified cleaning tape. Before using it, read its instruction sheet carefully. If the dirt on the video heads is too stubborn to be removed by tape, use the head cleaning kit by the following procedure. (See Fig. 1)

① Moisten the chamois leather on the cleaning stick with cleaning fluid.

② Touch the chamois leather on the cleaning stick against the head tip and gently turn the upper cylinder to the left and right.

Caution: Do not move the cleaning stick vertically or/and make sure that only the chamois leather on the cleaning stick comes into contact with the head tip. Otherwise, the head tip could be damaged.

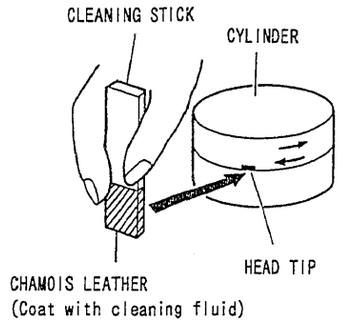


Fig. 1 Vide Head Cleaning Procedure

(2) Cleaning the tape transport system

Moisten gauze with ethyl alcohol and use it to wipe the surfaces of components which come into contact with the tape.

Caution: Be careful that the tape transport components are not damaged nor deformed by cleaning.

5-2. Lubricating Sonic Slidas Oil (#1600)

(1) Periodic lubrication

Lubricate the specified locations only when replacing components.
Normally, it is not necessary to lubricate in a period other than components are replaced.

(2) Procedure

Use the oiler to apply one or two drop of Sonic Slidas oil to the specified sections. Refer to the exploded views for the lubricating locations.

Caution: Do not use too much oil because it may spill over or leak, coming into contact with rotating parts and causing slippage or other defects.
If too much oil is applied, wipe clean using gauze moistened with ethyl alcohol.

5-3. Greasing the Froil (G31-SAY)

(1) Periodic greasing

Grease the specified locations only when replacing components.
Normally, it is not necessary to grease in a period other than components are replaced.

(2) Procedure

Apply Froil with a stick or brush to the specified locations. Refer to the exploded views for the greasing locations.

Caution: Do not use excess Froil. It may come into contact with the tape transport components and may cause defects.
Wipe off any excess using gauze moistened with ethyl alcohol.

Table 4 Parts to be Maintained/Inspected and Maintenance/Inspection Schedules

Caution: The following table dose not apply to all units. The maintenance/inspection schedules depend no how the unit is used and environment in which it is used.

Components \ Hours	500	1000	1500	2000	2500	3000
Video heads (Cylinder)	Clean	Clean/ Replace	Clean	Clean/ Replace	Clean	Clean/ Replace
Supply guide roller	Clean	Clean	Clean	Clean	Clean	Clean
Take-up guide roller	Clean	Clean	Clean	Clean	Clean	Clean
Supply guide pole	Clean	Clean	Clean	Clean	Clean	Clean
Impedance roller	Clean	Clean	Clean	Clean	Clean	Clean
Tension pole	Clean	Clean	Clean	Clean	Clean	Clean
Pull-out pole	Clean	Clean	Clean	Clean	Clean	Clean
Pressure roller	Clean	Clean	Clean	Clean/ Replace	Clean	Clean
Supply reel disk	———	———	———	Replace	———	———
Take-up reel disk	———	———	———	Replace	———	———
Tension band	———	Replace	———	Replace	———	Replace
Capstan belt	———	———	———	Replace	———	———
Reel drive idler	———	———	———	Replace	———	———
Capstan motor shaft (Capstan motor)	Clean	Clean	Clean	Clean/ Replace	Clean	Clean
Loading motor	———	———	———	Replace	———	———

CHAPTER 5

SCHEMATIC & CIRCUIT BOARD DIAGRAMS

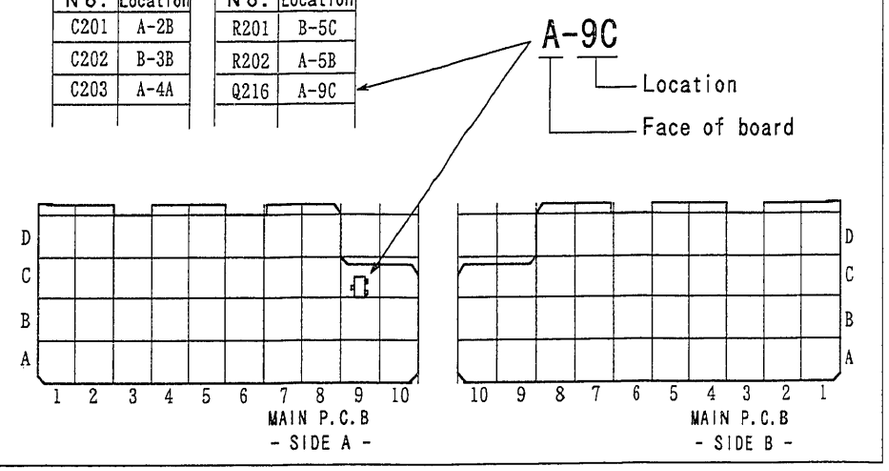
[Parts Location Indexing Tables]

This service manual shows the parts location indexing tables beside the major circuit board diagrams. These tables indicate the locations of each part on the circuit boards. Use the tables to locate the parts on the circuit boards.

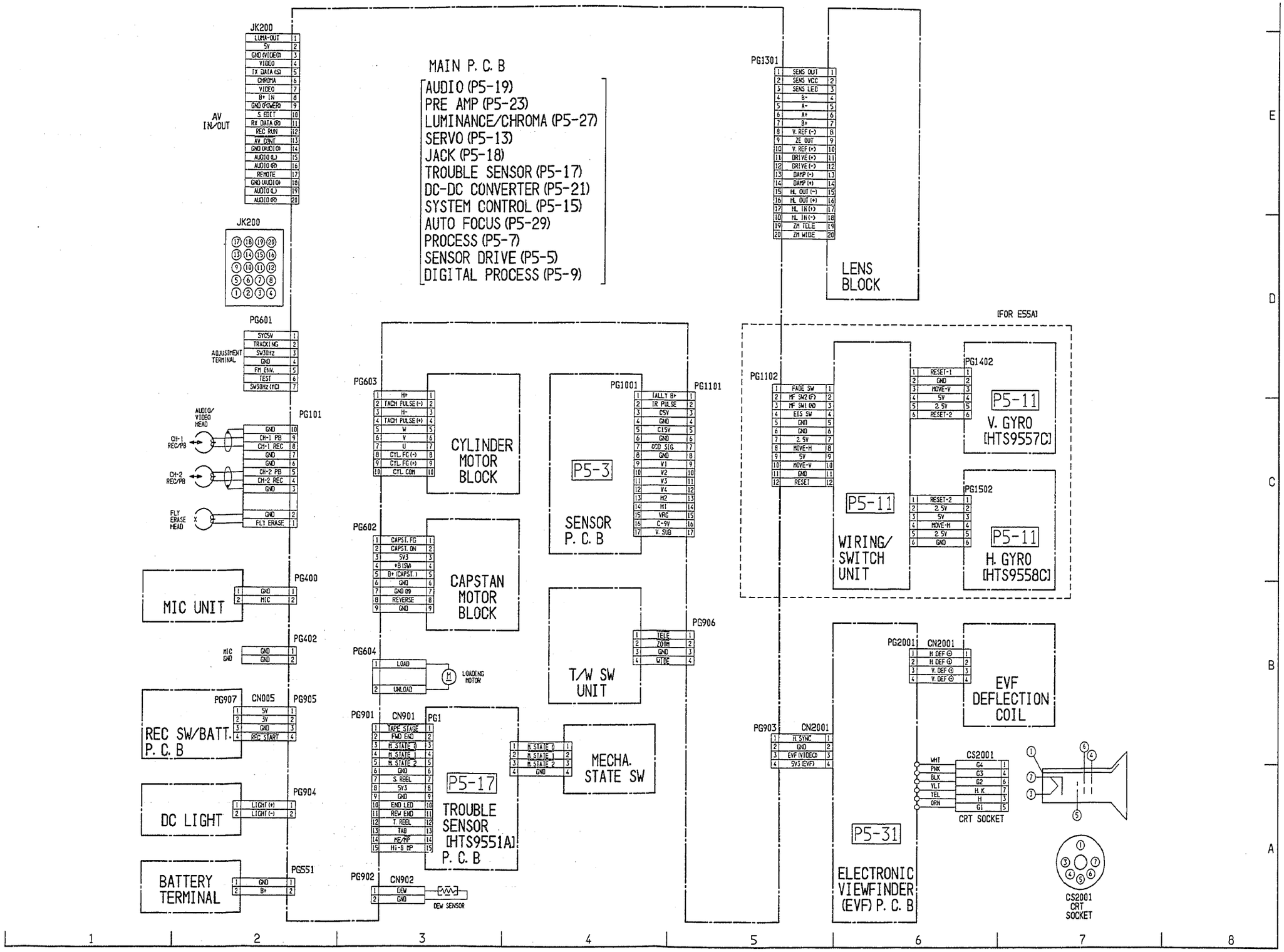
IDENTIFICATION OF PARTS LOCATION

Symbol No.	Parts Location
C201	A-2B
C202	B-3B
C203	A-4A

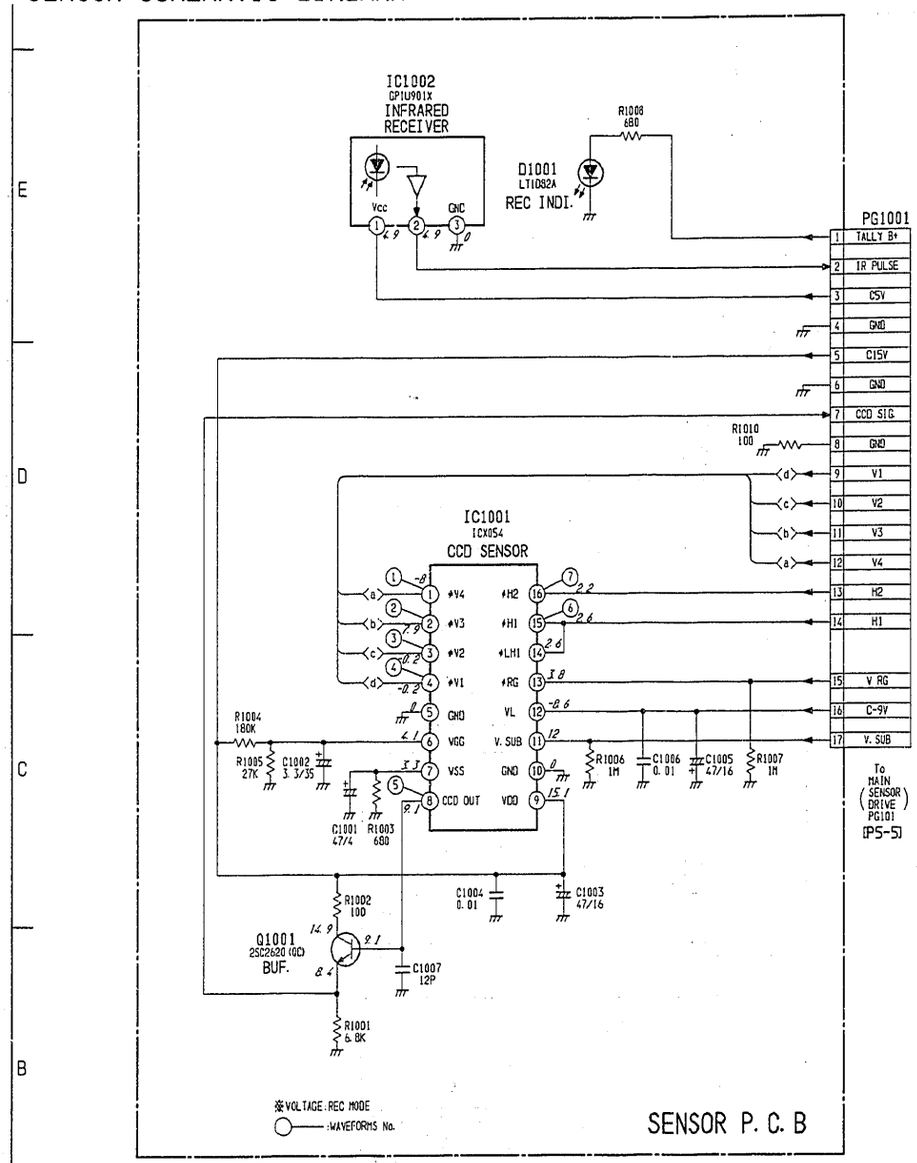
Symbol No.	Parts Location
R201	B-5C
R202	A-5B
Q216	A-9C



INTERNAL WIRING DIAGRAM

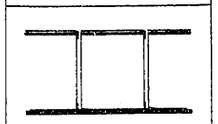


SENSOR SCHEMATIC DIAGRAM

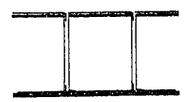


SENSOR/PROCESS WAVEFORMS

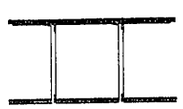
1-A IC1001-1 9.0Vp-p
2V/5.0msec.cm
COLOR CHART



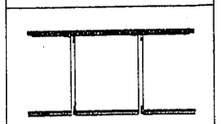
2-A IC1001-2 9.0Vp-p
2V/5.0msec.cm
COLOR CHART



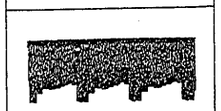
3-A IC1001-3 9.0Vp-p
2V/5.0msec.cm
COLOR CHART



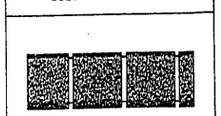
4-A IC1001-4 9.0Vp-p
2V/5.0msec.cm
COLOR CHART



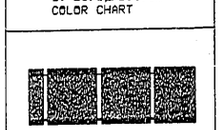
5-A IC1001-8 600mVp-p
0.2V/20.0μ sec.cm
COLOR CHART



6-A IC1001-15 6.0Vp-p
2V/20.0μ sec.cm
COLOR CHART



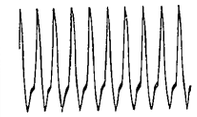
7-A IC1001-16 6.0Vp-p
2V/20.0μ sec.cm
COLOR CHART



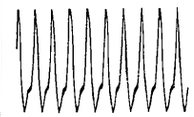
1-A IC1101-3 300mVp-p
0.1V/20.0μ sec.cm
COLOR CHART

2-A IC1101-26 3.3Vp-p
1V/20.0μ sec.cm
COLOR CHART

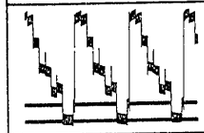
3-A IC1101-45 2.7Vp-p
0.5V/100nsec.cm
COLOR CHART



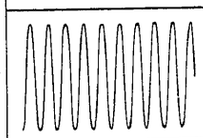
4-A IC1101-46 2.7Vp-p
0.5V/100nsec.cm
COLOR CHART



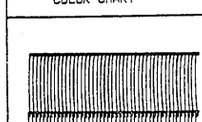
5-A IC1102-31 1.0Vp-p
0.2V/20.0μ sec.cm
COLOR CHART



6-A IC1102-42 4.0Vp-p
1V/100nsec.cm
COLOR CHART



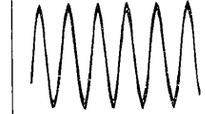
7-A IC1103-6 3.3Vp-p
1V/10.0μ sec.cm
COLOR CHART



8-A IC1103-14 3.3Vp-p
1V/5.0msec.cm
COLOR CHART

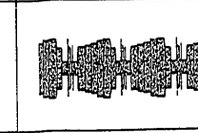
9-A IC1103-19 3.3Vp-p
1V/20.0μ sec.cm
COLOR CHART

10-A IC1103-27 1.1Vp-p
0.2V/20.0nsec.cm
COLOR CHART

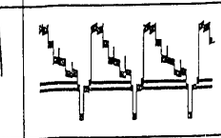


11-A

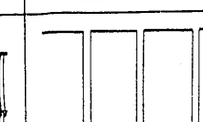
12-A IC1103-42 600mVp-p
0.2V/20.0μ sec.cm
COLOR CHART



13-A IC1103-46 1.0Vp-p
0.2V/20.0μ sec.cm
COLOR CHART

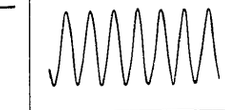


14-A IC1103-90 3.3Vp-p
1V/20.0μ sec.cm
COLOR CHART

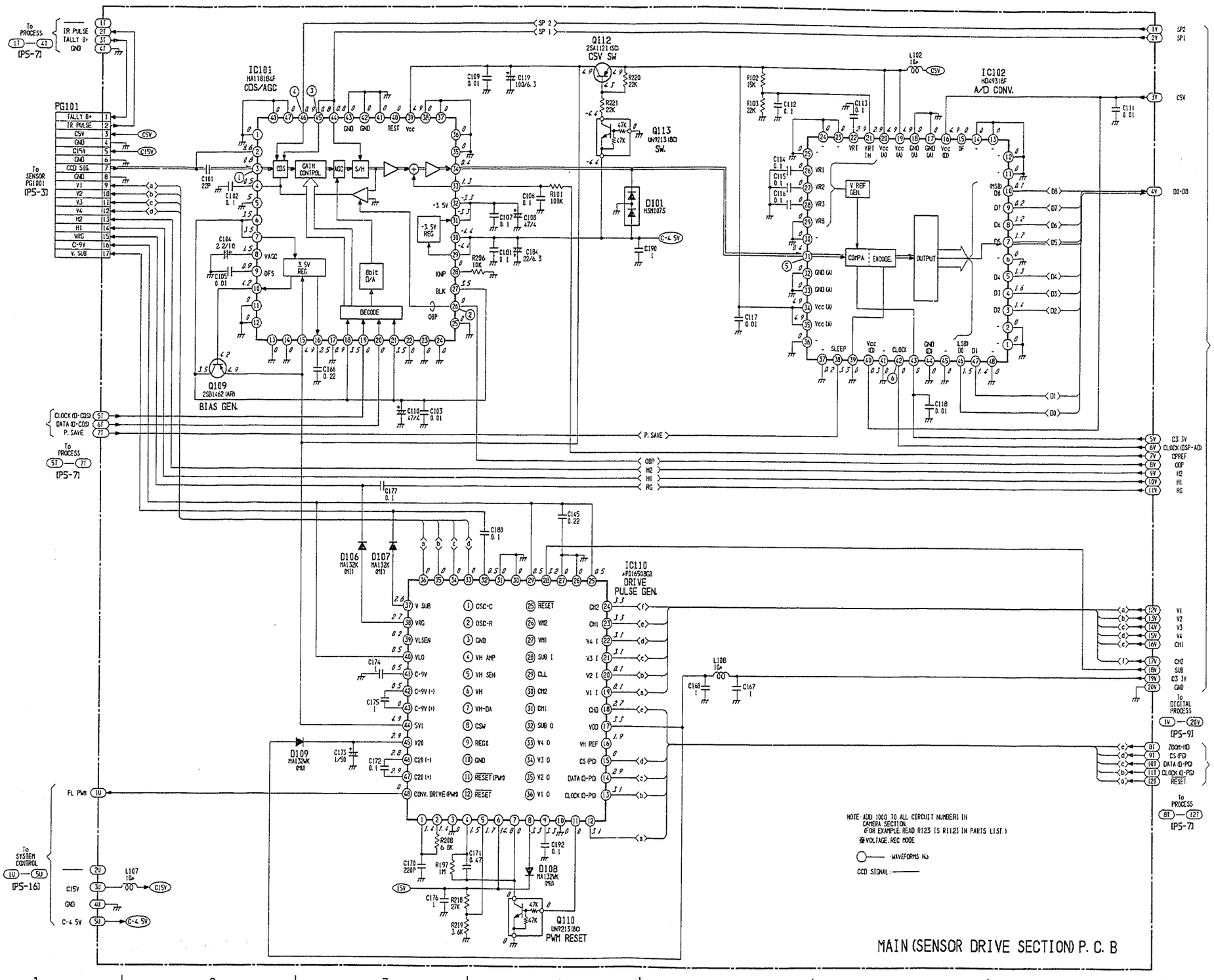


15-A IC1103-103 3.3Vp-p
1V/20.0μ sec.cm
COLOR CHART

16-A IC1105-3 4.0Vp-p
1V/50.0nsec.cm
COLOR CHART

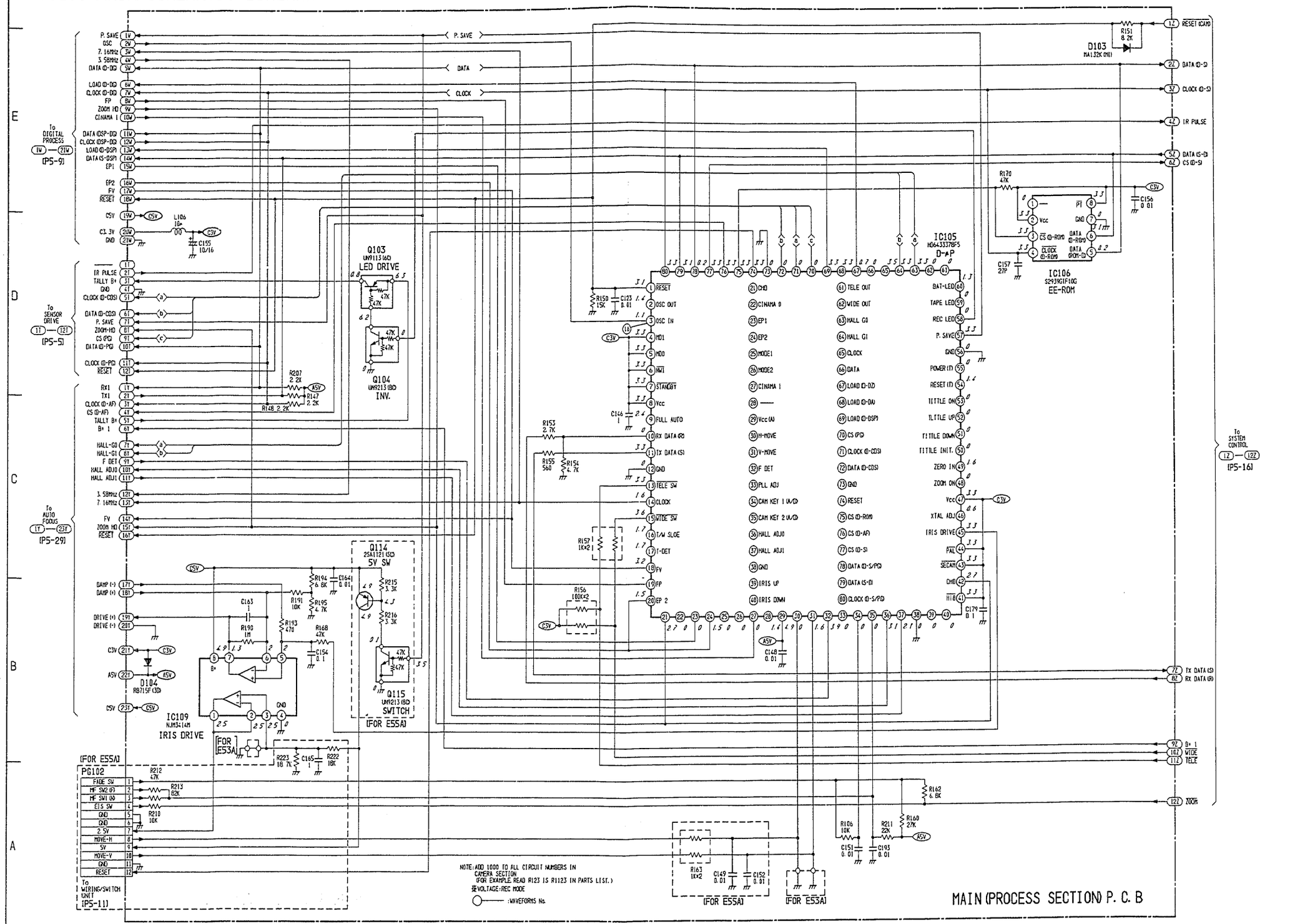


SENSOR DRIVE (MAIN) SCHEMATIC DIAGRAM

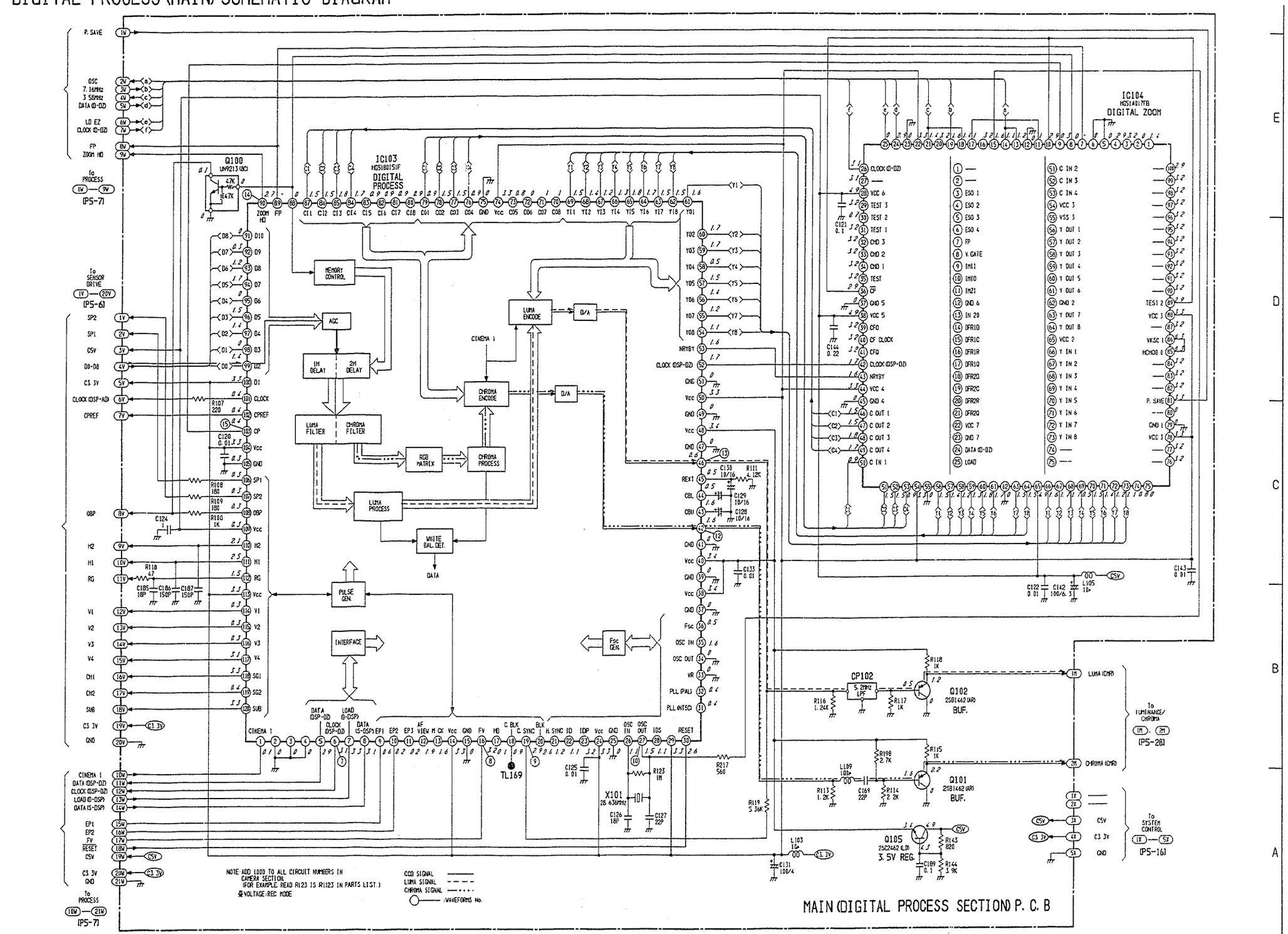


SENSOR DRIVE 5-5 5-6 SENSOR DRIVE

PROCESS (MAIN) SCHEMATIC DIAGRAM

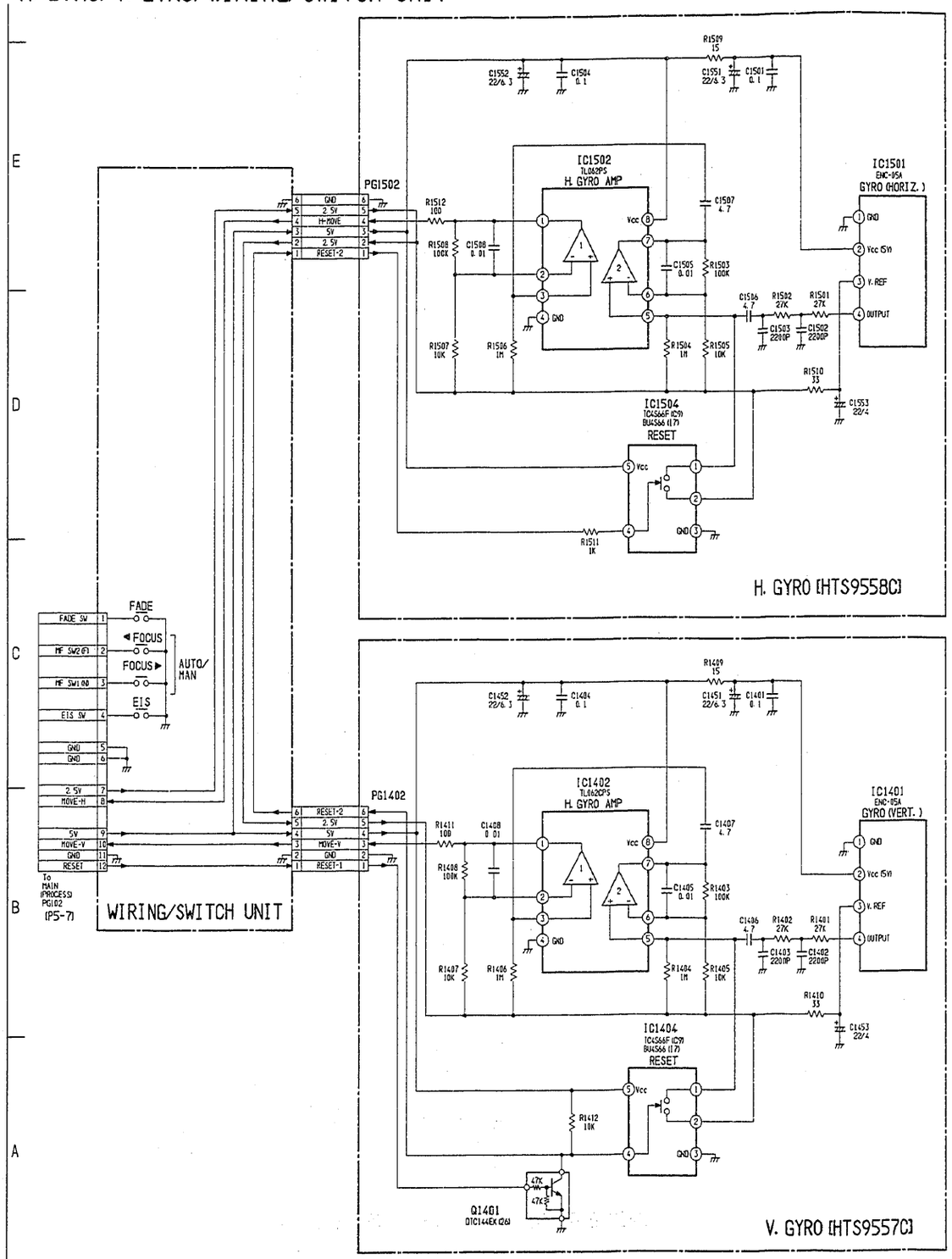


DIGITAL PROCESS (MAIN) SCHEMATIC DIAGRAM



DIGITAL PROCESS 5-9 5-10 DIGITAL PROCESS

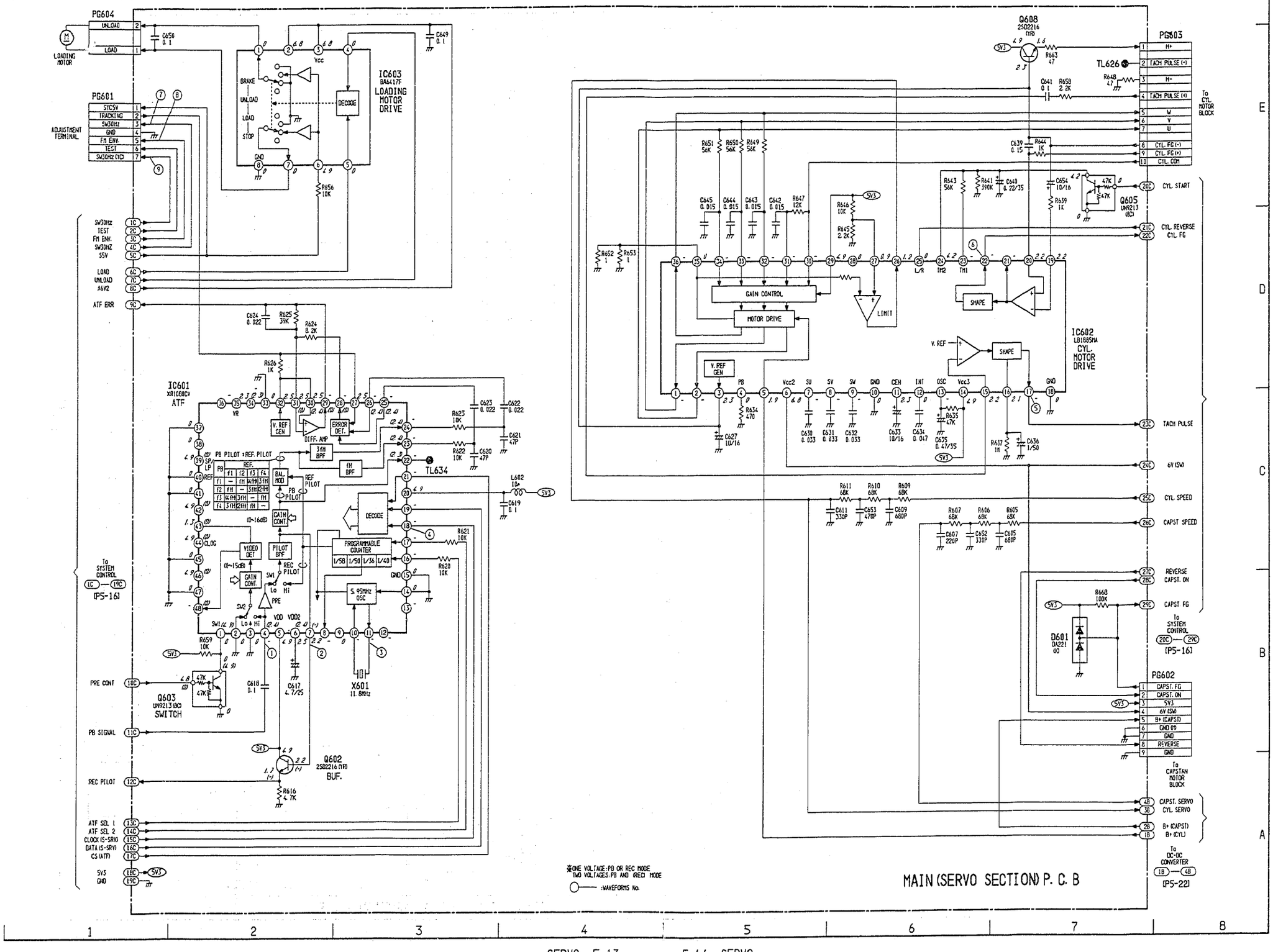
H. GYRO. V. GYRO. WIRING/SWITCH UNIT



SERVO WAVEFORMS

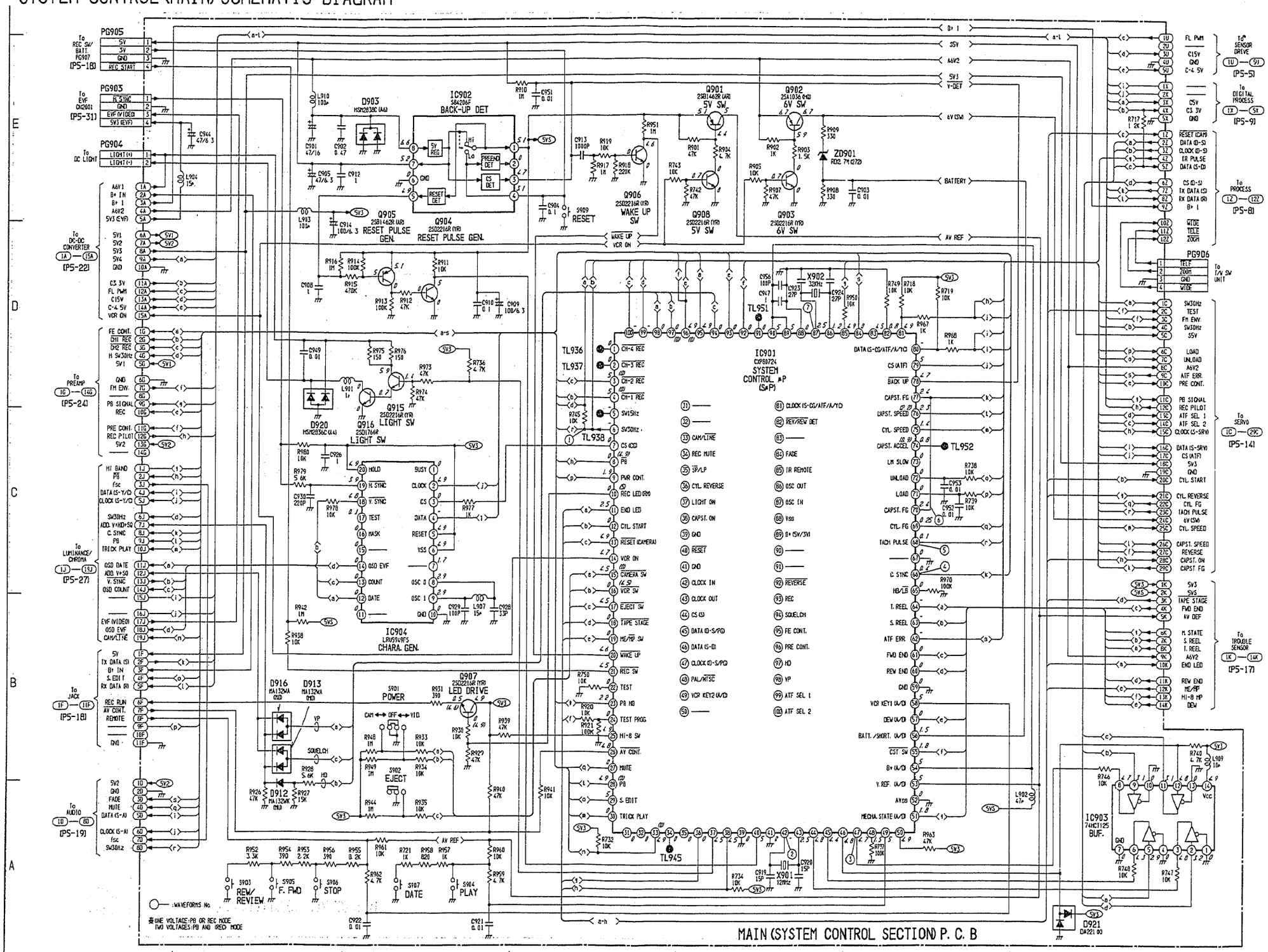
1-B IC601-4 350mVp-p 0.2V/5.0msec.cm PLAY	8-B PG601-5 400mVp-p 0.2V/5.0msec.cm PLAY
2-A IC601-7 2.7Vp-p 1V/20.0μ sec.cm REC	9-A PG601-7 4.2Vp-p 1V/5.0msec.cm REC/PLAY
3-A IC601-11 750mVp-p 0.2V/50.0nsec.cm REC/PLAY	
4-A IC601-18 5.1Vp-p 2V/20.0μ sec.cm REC/PLAY	
5-A IC602-17 5.2Vp-p 1V/10.0msec.cm REC/PLAY	
6-A IC602-22 5.0Vp-p 1V/1.0msec.cm REC/PLAY	
7-A PG601-3 5.1Vp-p 1V/5.0msec.cm REC/PLAY	

SERVO (MAIN) SCHEMATIC DIAGRAM



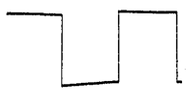
SERVO 5-13 5-14 SERVO

SYSTEM CONTROL (MAIN) SCHEMATIC DIAGRAM

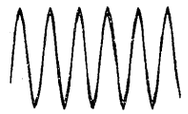


SYSTEM CONTROL WAVEFORMS

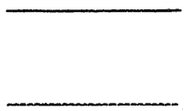
1-A IC901-6 4.2Vp-p
1V/5.0msec.cm
REC/PLAY



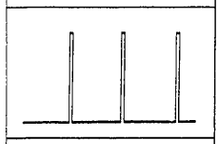
2-A IC901-42 4.7Vp-p
1V/50.0nsec.cm
REC/PLAY



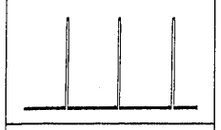
3-A IC901-47 5.0Vp-p
1V/20.0μ sec.cm
REC/PLAY



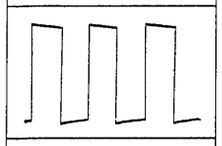
4-A IC901-66 5.0Vp-p
1V/20.0μ sec.cm
REC/PLAY



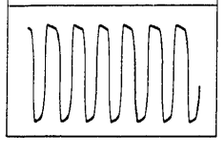
5-A IC901-68 5.0Vp-p
1V/10.0msec.cm
REC/PLAY



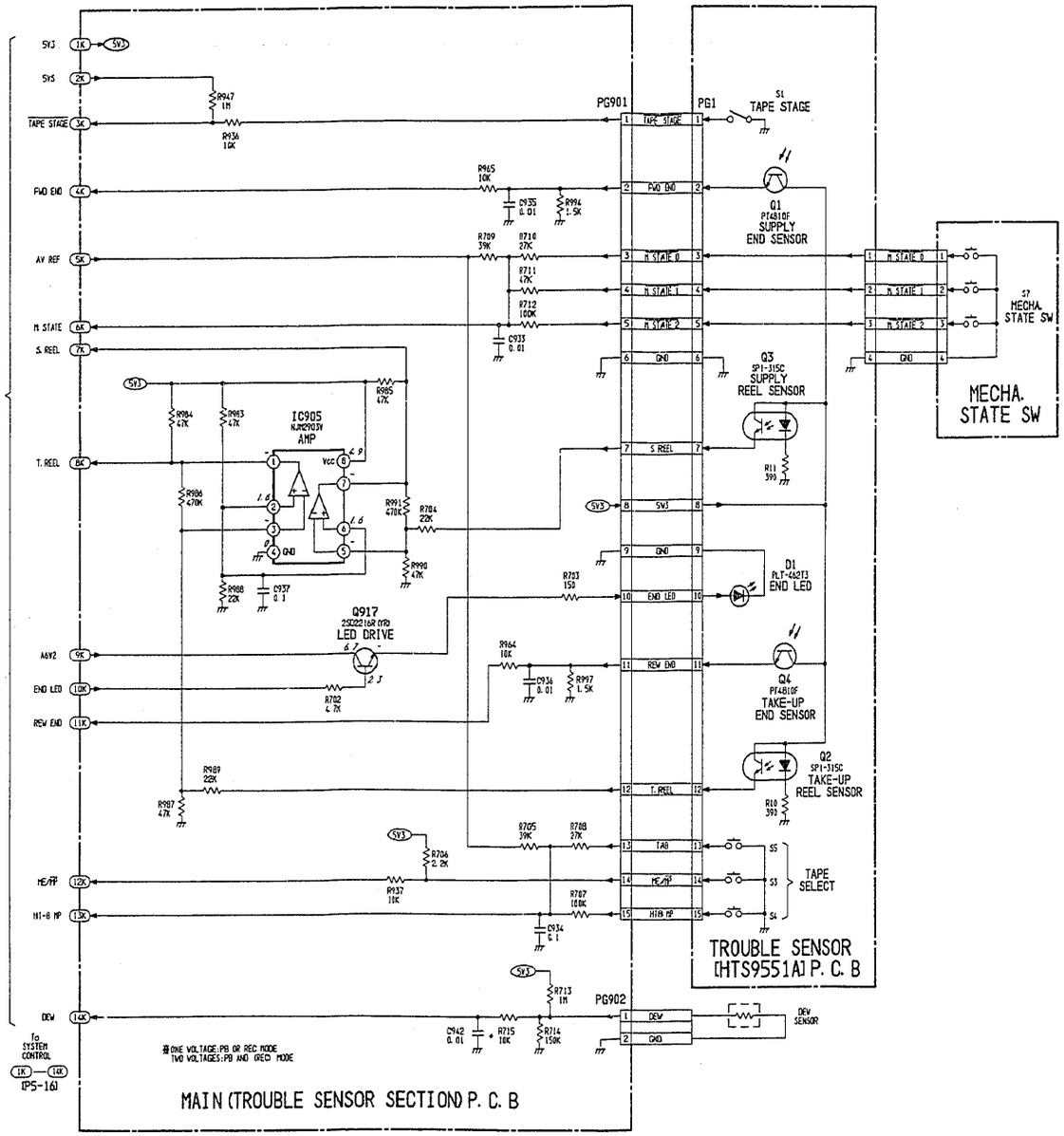
6-A IC901-70 5.0Vp-p
1V/200μ sec.cm
REC/PLAY



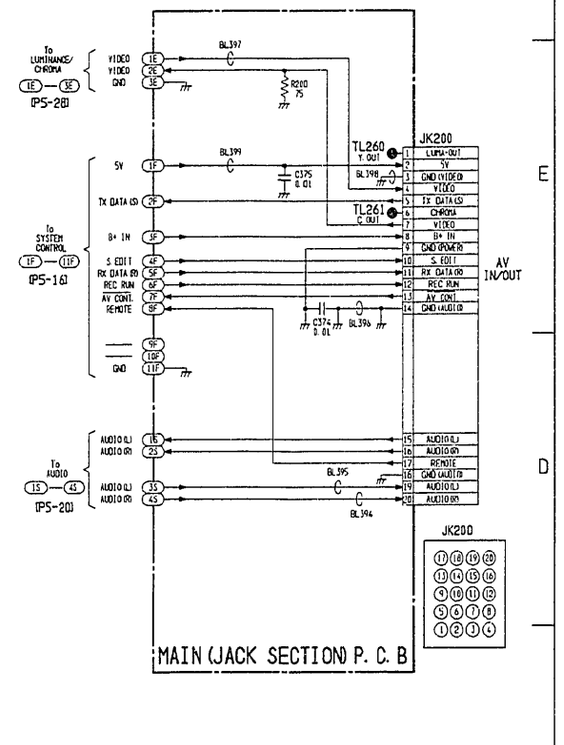
7-A IC901-87 5.3Vp-p
1V/20.0μ sec.cm
REC/PLAY



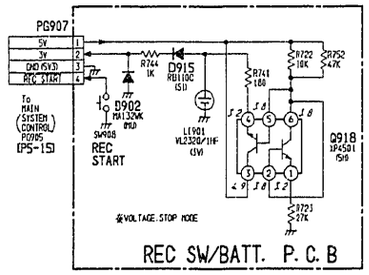
TROUBLE SENSOR (MAIN) SCHEMATIC DIAGRAM



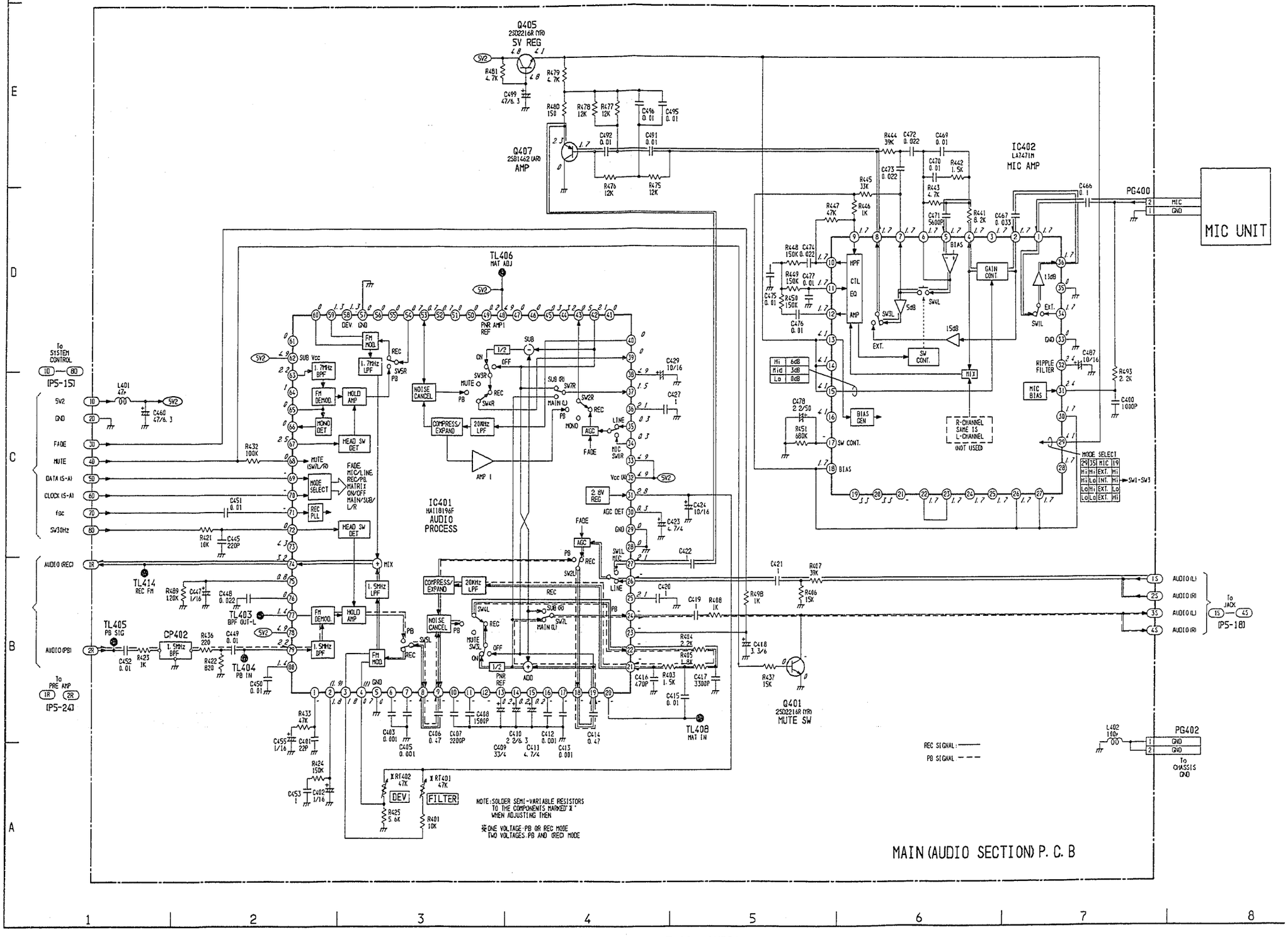
JACK (MAIN) SCHEMATIC DIAGRAM



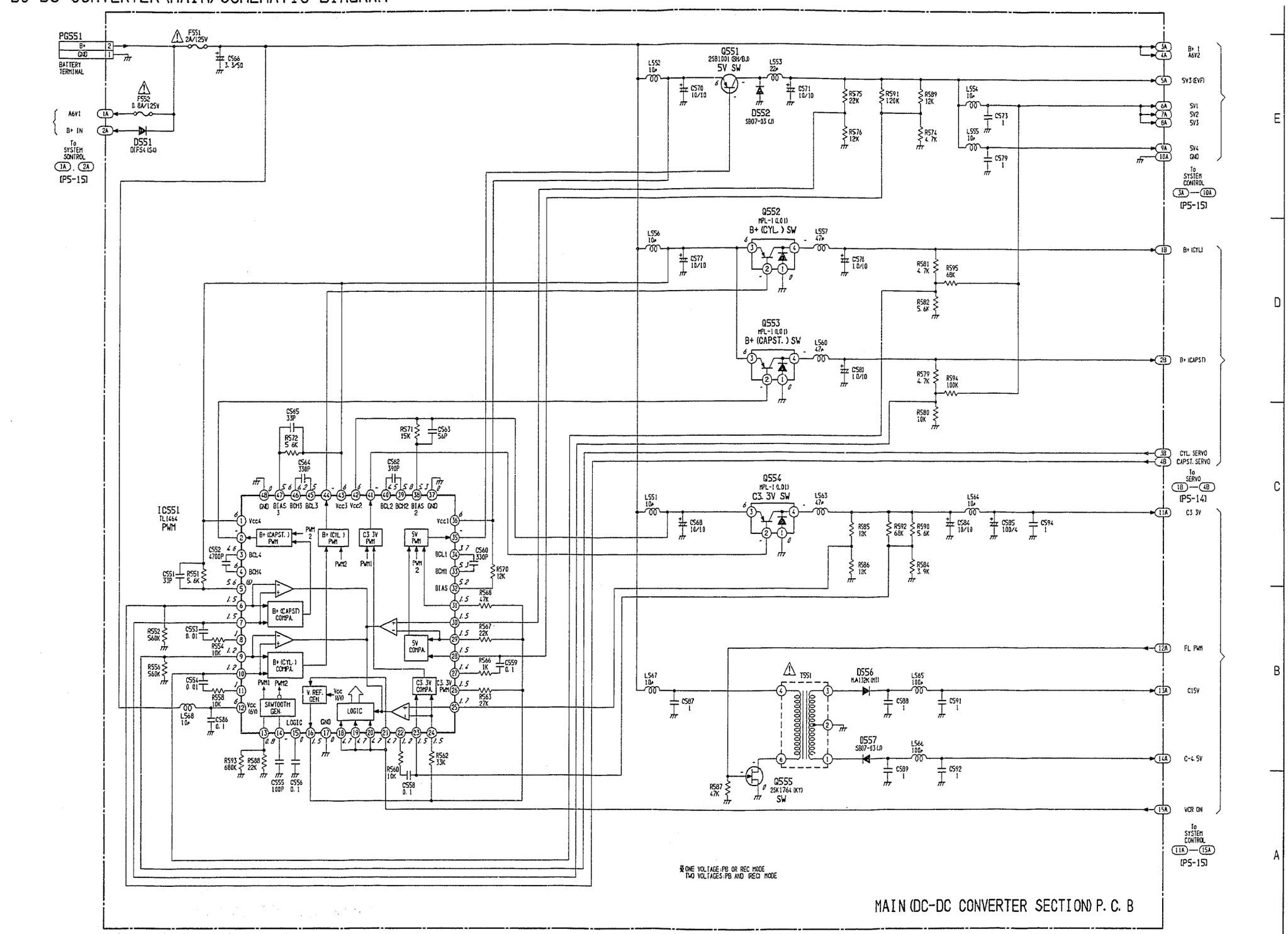
REC SW/BATT. SCHEMATIC DIAGRAM



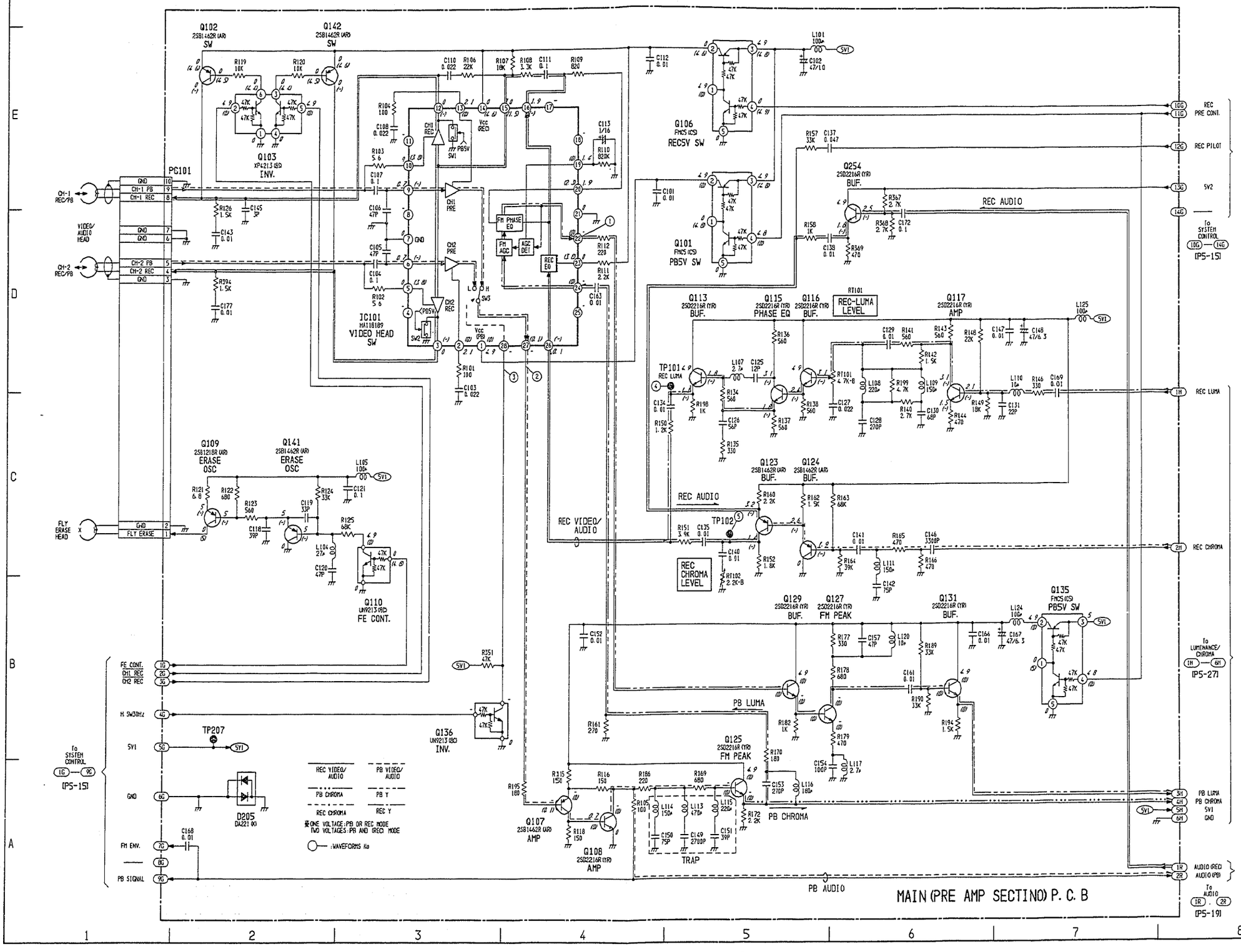
AUDIO (MAIN) SCHEMATIC DIAGRAM



DC-DC CONVERTER (MAIN) SCHEMATIC DIAGRAM

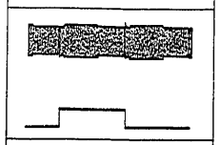


PRE AMP (MAIN) SCHEMATIC DIAGRAM

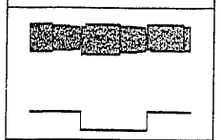


PRE AMP WAVEFORMS

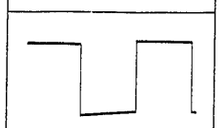
1-B IC101-22 350mVp-p
0.2V/5.0msec.cm
PLAY



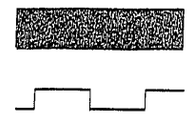
2-B IC101-27 200mVp-p
0.1V/5.0msec.cm
PLAY



3-A IC101-28 2.2Vp-p
0.5V/5.0msec.cm
REC/PLAY



4-A TP101 210mVp-p
0.1V/5.0msec.cm
REC

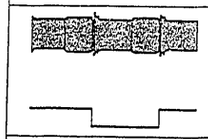
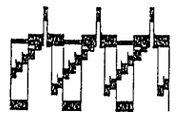
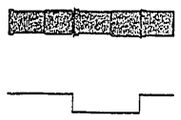
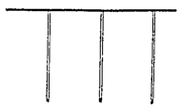
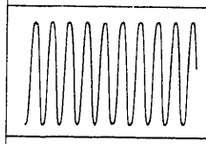
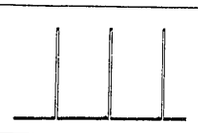
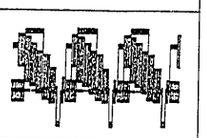
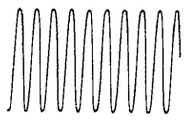
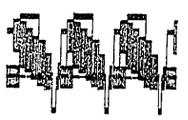
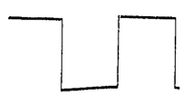


5-A TP102 140mVp-p
50mV/20.0μ sec.cm
REC

E D C B A

1 2 3 4

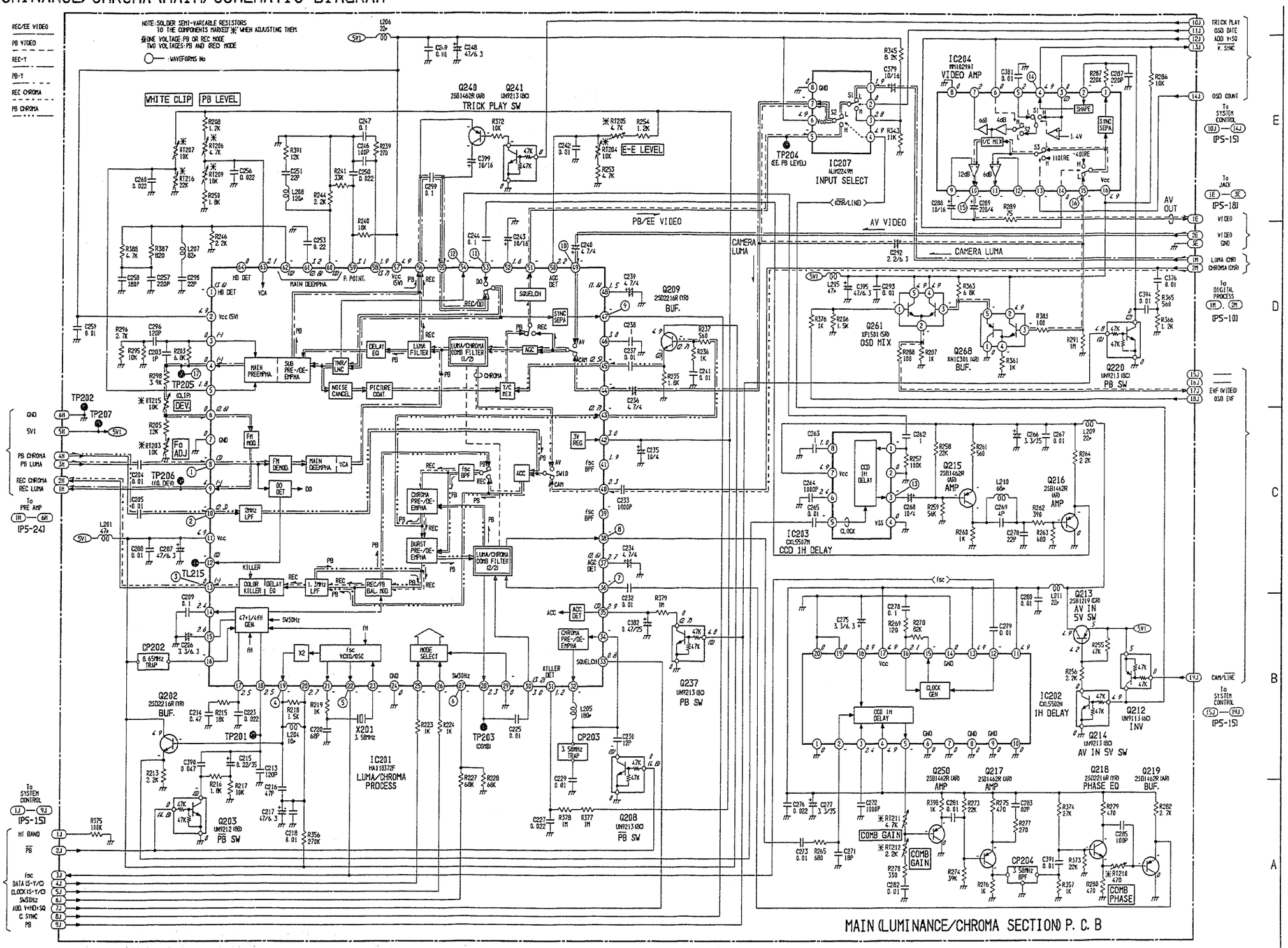
LUMINANCE/CHROMA WAVEFORMS

1-B IC201-8 400mVp-p 0.2V/5.0msec.cm PLAY	7-B IC201-36 180mVp-p 50mV/20.0μ sec.cm PLAY	13-A IC203-3 550mVp-p 0.1V/20.0μ sec.cm REC/PLAY
		
2-B IC201-10 300mVp-p 0.2V/5.0msec.cm PLAY	8-A IC201-38 160mVp-p 50mV/20.0μ sec.cm REC	14-A IC204-4 5.0Vp-p 1V/5.0msec.cm REC/PLAY
		
3-A IC201-13 300mVp-p 0.1V/20.0μ sec.cm REC	8-B IC201-38 300mVp-p 0.1V/20.0μ sec.cm PLAY	15-A IC204-10 1.9Vp-p 0.5V/20.0μ sec.cm REC/PLAY
4-A IC201-19 330mVp-p 0.1V/100nsec.cm REC/PLAY	9-A IC201-47 5.0Vp-p 1V/20.0μ sec.cm REC/PLAY	16-A IC204-15 970mVp-p 0.2V/20.0μ sec.cm REC/PLAY
		
5-A IC201-22 420mVp-p 0.1V/200nsec.cm REC/PLAY	10-A IC201-49 1Vp-p 0.2V/20.0μ sec.cm REC	17-A TP205 310mVp-p 0.1V/20.0μ sec.cm REC
		
6-A IC201-27 2.0Vp-p 0.5V/5.0msec.cm REC/PLAY	11-A IC201-53 300mVp-p 0.1V/20.0μ sec.cm REC/PLAY	
		
7-A IC201-36 100mVp-p 50mV/20.0μ sec.cm REC	12-A IC201-54 550mVp-p 0.1V/20.0μ sec.cm REC/PLAY	

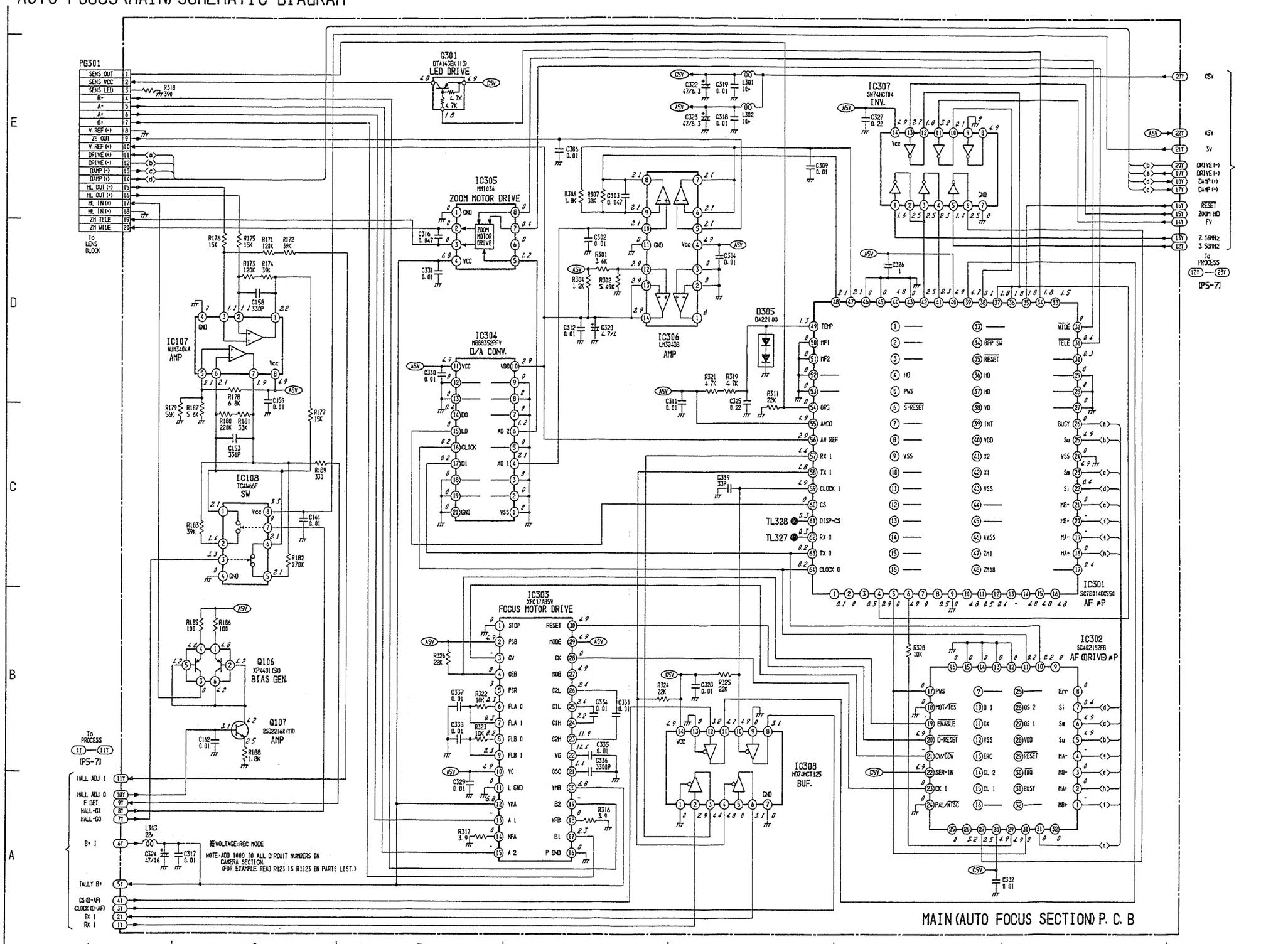
E D C B A

1 2 3 4

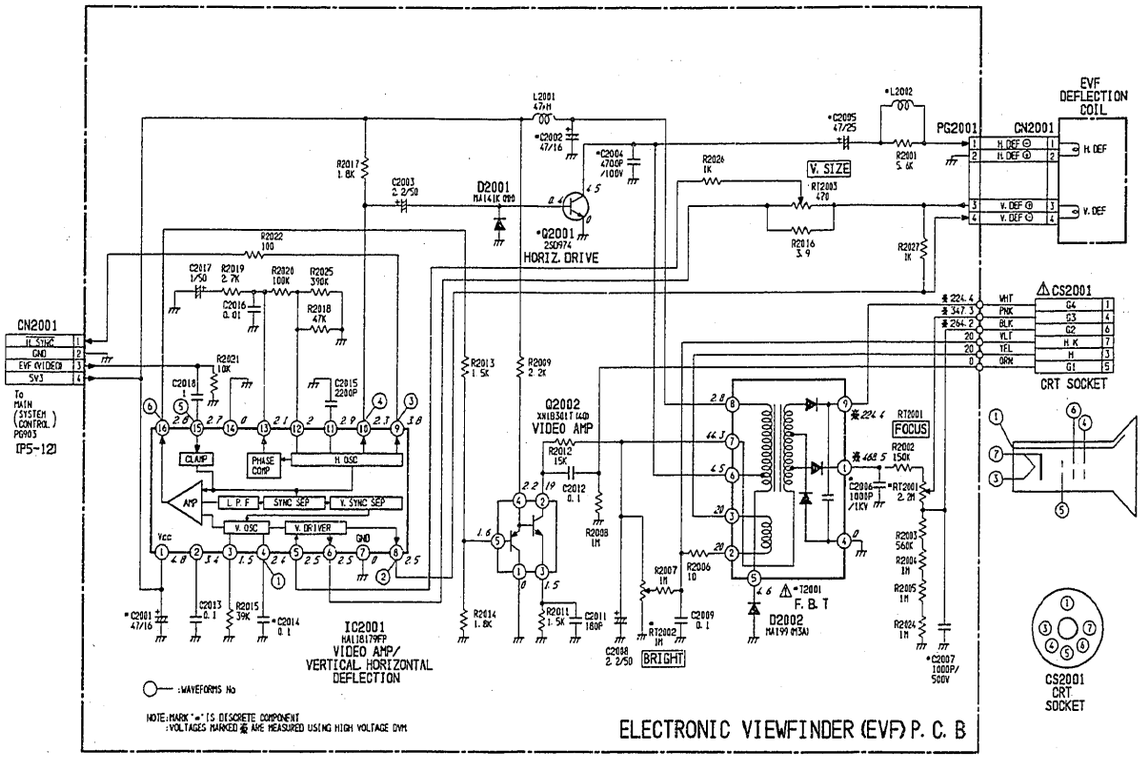
LUMINANCE/CHROMA (MAIN) SCHEMATIC DIAGRAM



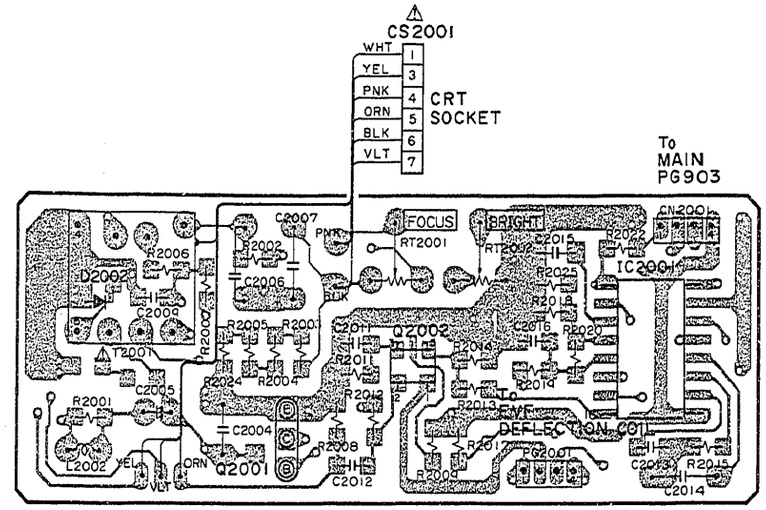
AUTO FOCUS (MAIN) SCHEMATIC DIAGRAM



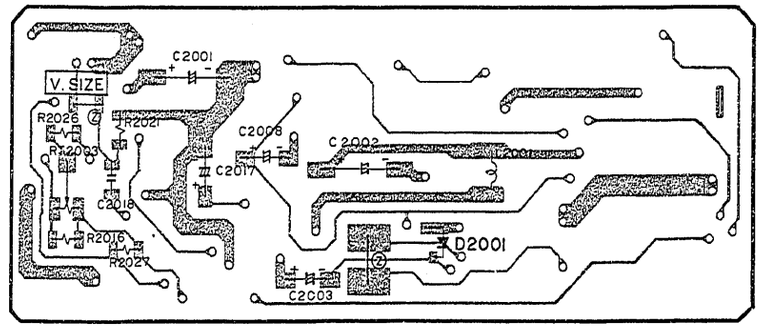
ELECTRONIC VIEWFINDER (EVF) SCHEMATIC DIAGRAM



ELECTRONIC VIEWFINDER (EVF) CIRCUIT BOARD



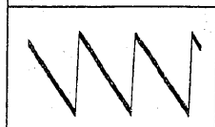
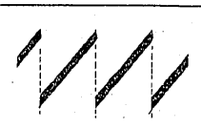
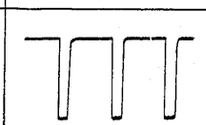
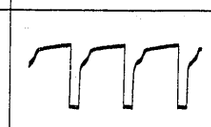
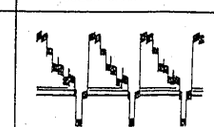
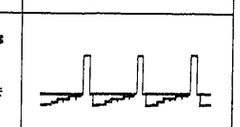
EVF (ELECTRONIC VIEWFINDER) — SIDE A —



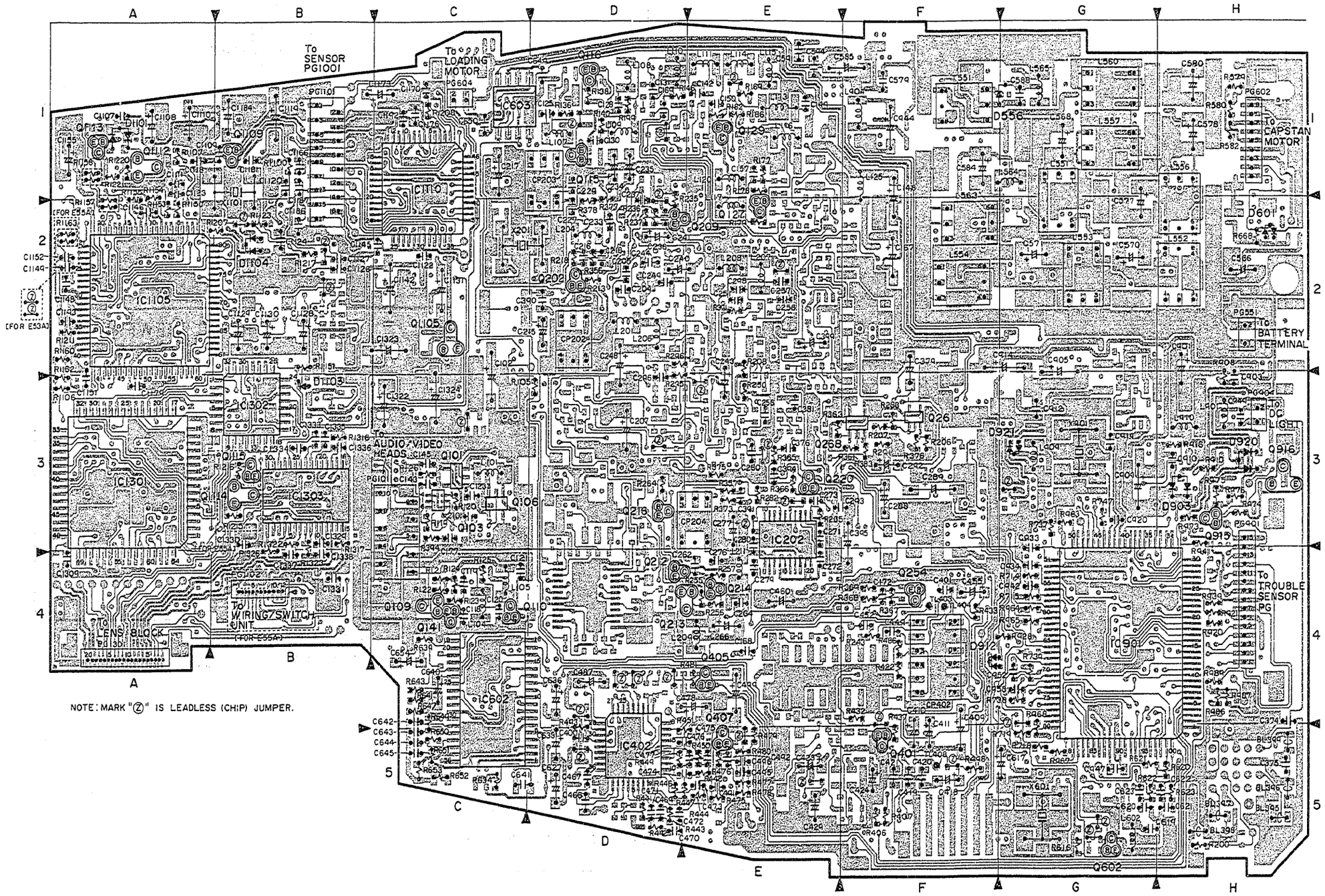
EVF (ELECTRONIC VIEWFINDER) — SIDE B —

NOTE: MARK "Ⓩ" IS LEADLESS (CHIP) JUMPER.

ELECTRONIC VIEWFINDER (EVF) WAVEFORMS

1-A IC2001-4 950mVp-p 0.2V/5.0msec.cm COLOR CHART	2-A IC2001-8 2.3Vp-p 0.5V/5.0msec.cm COLOR CHART	3-A IC2001-9 5.0Vp-p 1V/20.0μ sec.cm COLOR CHART	4-A IC2001-10 1.7Vp-p 0.5V/20.0μ sec.cm COLOR CHART	5-A IC2001-15 900mVp-p 0.2V/20.0μ sec.cm COLOR CHART	6-A IC2001-16 2.8Vp-p 1V/20.0μ sec.cm COLOR CHART
					

MAIN CIRCUIT BOARD [SIDE-A]



IDENTIFICATION OF PARTS LOCATION

MAIN

Symbol No.	Parts Location
BL	
BL394	B-5A
BL395	A-5H
BL396	A-5H
BL397	A-5H
BL398	A-5H
BL399	A-5H
C	
C101	A-3C
C102	A-2C
C103	B-4F
C104	B-4F
C105	B-3F
C106	B-3F
C107	B-3F
C108	B-3F
C110	B-3F
C111	B-3F
C113	B-3F
C118	A-4C
C119	A-4C
C120	A-4C
C121	A-4C
C123	A-3C
C125	A-1D
C126	B-1E
C127	B-1E
C128	A-1D
C129	B-1E
C130	A-1D
C131	A-1D
C134	B-1F
C135	B-1F
C137	B-1D
C138	B-1E
C140	B-1D
C141	B-1D
C142	A-1E
C143	A-3C
C145	A-3C
C146	B-1D
C147	B-1E
C148	A-1F
C149	A-1E
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C929	B-3B
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C935	B-4B
C936	B-4B
C937	B-4A
C942	A-4G
C944	A-1F
C947	A-5G
C949	A-3H
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C1108	A-1A
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C1111	A-1A
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C1113	B-2H
C1114	B-1H
C1115	B-1H
C1116	B-1H
C1117	B-1H
C1118	A-1A
C1119	A-1B
C1120	A-1B
C1121	B-2H
C1122	A-2C
C1123	A-1A
C1124	A-2B
C1125	B-2F
C1126	A-2B
C1127	A-2B
C1128	A-2B
C1129	A-2B
C1130	A-2B
C1131	A-2C
C1133	B-2G
C1142	A-2C
C1143	B-3H
C1144	B-2H
C1145	A-2C
C1146	A-2A
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C1151	A-3A
C1152	A-2A
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C1154	B-3G
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C1176	A-1C
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C1189	B-2F
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C1192	A-1C
C1193	A-2A
C1302	B-4H
C1303	B-4H
C1304	B-4H
C1306	B-4H
C1309	A-4A
C1311	B-3H
C1312	B-3H
C1316	B-4H
C1317	B-3F
C1318	B-2F
C1319	B-2F
C1320	B-4H
C1322	A-3C
C1323	A-2C
C1324	A-3C
C1325	B-3H
C1326	B-3H
C1327	B-2G
C1328	B-3H
C1329	A-3B
C1330	A-3B
C1331	A-4B
C1332	B-3G
C1333	A-3B
C1334	A-3B
C1335	A-3B
C1336	A-3B
C1337	A-4B
C1338	A-4B
C1339	B-3H
CP	
CP202	A-2D
CP203	A-1D
CP204	A-3E
CP402	A-4F
CP1102	B-3G
D	
D205	B-1D
D551	B-2A
D552	B-2A
D556	A-1G
D557	B-1C
D601	A-2H
D903	A-3H
D912	A-4F
D913	B-4B
D916	B-4C
D920	A-3H
D921	A-3G
D1101	A-1A
D1103	A-3B
D1104	A-2B
D1106	B-2F
D1107	B-2F
D1108	B-1F
D1109	B-1F
D1305	B-3H
F	
F551	B-2A
F552	B-2A
IC	
IC101	B-4F
IC201	B-2E
IC202	A-3E
IC203	B-4D
IC204	B-3C
IC207	B-2C
IC401	B-4C
IC402	A-5D
IC551	B-2B
IC601	B-5B
IC602	A-4C
IC603	A-1C
IC901	A-4G
IC902	B-3A
IC903	B-3B
IC904	B-3B
IC905	B-4A
IC1101	B-1G
IC1102	B-1H
IC1103	B-2G
IC1104	B-2H
IC1105	A-2A
IC1106	B-2F
IC1107	B-3H
IC1108	B-3H
IC1109	B-3G
IC1110	A-1C
IC1301	A-3A
IC1302	A-3B
IC1303	A-3B
IC1304	B-4G
IC1305	B-4G
IC1306	B-4H
IC1307	B-3G
IC1308	B-3H
JK	
JK200	B-5A
L	
L101	A-3C
L104	A-4C
L105	A-4C
L107	A-1D
L108	A-1D
L109	A-1D
L110	A-1D
L111	A-1E
L113	A-1E
L114	A-1E
L115	A-1E
L116	A-1E
L117	A-2E
L120	A-1E
L124	B-2C
L125	A-1F
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L206	A-2D
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L208	A-2E
L209	A-4E
L210	B-3E
L211	A-4E
L215	B-3C
L401	B-4D
L402	B-5D
L551	A-1G
L552	A-2H
L553	A-2G
L554	A-2F
L555	B-2C
L556	A-2H
L557	A-1G
L560	A-1G
L563	A-2F
L564	A-1G
L565	A-1G
L566	B-1C
L567	B-1B
L602	A-5G
L901	A-3H
L902	B-3B
L903	B-2C
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L1106	B-1H
L1107	B-1F
L1108	B-1F
L1109	B-2G
L1301	B-3F
L1302	B-2F
L1303	B-3F
PG	
PG101	A-3C
PG400	B-5E
PG402	B-5D
PG551	A-2H
PG601	B-5C
PG602	A-1H
PG603	B-4F
PG604	A-1C
PG901	A-4H
PG902	B-5F
PG903	B-1C
PG904	A-3H
PG905	B-3C
PG906	B-1D
PG1101	A-1B
PG1102	A-4B
PG1301	A-4A
Q	
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Q102	B-3F
Q103	A-3C
Q106	A-3C
Q107	B-3F
Q108	B-3E
Q109	A-4C
Q110	A-4C
Q113	B-1E
Q115	A-1D
Q116	A-1D
Q117	B-1E
Q123	B-1D
Q124	B-1D
Q125	B-1D
Q127	A-2E
Q129	A-1E
Q131	B-2D
Q135	B-2C
Q136	B-3E
Q141	A-4C
Q142	B-4F
Q202	A-2D
Q203	B-2E
Q208	B-1F
Q209	A-2D
Q212	A-4D
Q213	A-4E
Q214	A-4E
Q215	B-3D
Q216	A-3D
Q217	B-3D
Q218	B-3D
Q219	B-3D
Q220	A-3E
Q237	B-2E
Q240	B-2D
Q241	B-2C
Q250	B-3D
Q254	A-4F
Q261	A-3F
Q268	A-3F
Q401	A-5F
Q405	A-4E
Q407	A-5E
Q551	B-2A
Q552	B-1A
Q553	B-1B
Q554	B-2C
Q555	B-1C
Q602	A-5G
Q603	B-5B

IDENTIFICATION OF PARTS LOCATION

MAIN

Symbol No.	Parts Location
Q605	B-4B
Q608	B-4F
Q901	B-3A
Q902	B-2A
Q903	B-3A
Q904	B-3A
Q905	B-3A
Q906	B-4B
Q907	B-4B
Q908	B-2A
Q915	A-3H
Q916	A-3H
Q917	B-4A
Q1100	B-1H
Q1101	B-3G
Q1102	B-3G
Q1103	B-3F
Q1104	B-3F
Q1105	A-2C
Q1106	B-3G
Q1107	B-3G
Q1109	A-1B
Q1110	B-1F
Q1112	A-1A
Q1113	A-1A
Q1114	A-3B
Q1115	A-3B
Q1301	B-4G
R	
R101	B-4F
R102	B-4F
R103	B-3F
R104	B-3F
R105	A-3D
R106	B-3F
R107	B-3F
R108	B-3F
R109	B-3F
R110	B-3F
R111	B-3F
R112	B-2F
R115	B-2F
R116	B-2F
R118	B-3F
R119	A-3C
R120	A-3C
R121	A-4C
R122	A-4C
R123	A-4C
R124	A-4C
R125	A-4C
R126	A-3C
R134	B-1E
R135	B-1E
R136	A-1D
R137	B-1E
R138	A-1D
R140	A-1D
R141	B-1E
R142	B-1E
R143	B-1E
R144	B-1E
R146	A-1D
R148	B-1E
R149	B-1E
R150	B-1F
R151	B-1F
R152	B-1D
R157	B-1E
R158	B-1E
R160	B-1E
R161	B-1D
R162	B-1D
R163	B-1D
R164	B-1D
R165	B-1D
R166	B-1D
R169	A-1E
R170	B-1D
R172	B-1D
R177	A-1E
R178	A-1E
R179	A-2E
R182	A-1E
R186	A-1E
R189	B-2D
R190	B-2D
R194	B-2D
R195	B-3F
R198	B-1E
R199	A-1D
R200	A-5H
R203	B-2E
R205	B-3E
R206	A-3F
R207	A-3F
R208	A-2E
R213	A-2D
R215	B-2E
R216	B-2E
R217	B-2E
R218	A-2D
R219	B-2E
R223	B-2F
R224	B-2E
R227	B-2F
R228	B-2F
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R236	A-2D
R237	A-2D
R239	B-2D
R240	B-2D
R241	B-2D
R243	A-4F
R244	B-2D
R246	B-2D
R250	A-3E
R253	B-2D
R254	B-2D
R255	A-4E
R256	A-4E
R257	A-4E
R258	B-3D
R259	B-3D
R260	B-3D
R261	B-3D
R262	B-3D
R263	B-3D
R264	A-3D
R265	A-3E
R269	B-4D
R270	B-4D
R273	B-3D
R274	B-3D
R275	B-3D
R276	B-3D
R277	B-3D
R278	B-4C
R279	B-3D
R280	B-3D
R282	A-3E
R286	B-3C
R287	B-3D
R288	A-3F
R289	B-3C
R291	A-3F
R295	A-3D
R296	A-2D
R298	B-3D
R343	B-3C
R345	B-3C
R351	B-2E
R356	A-2D
R357	A-3E
R361	A-3F
R363	A-3E
R365	A-3E
R366	A-3E
R367	A-4F
R368	A-4F
R369	A-4F
R372	B-2D
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R374	B-3D
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R377	A-2D
R378	A-2D
R379	B-1E
R383	A-3F
R387	B-2D
R388	B-2D
R391	A-2E
R394	A-3C
R398	B-3D
R401	B-4C
R403	B-5C
R404	B-5C
R405	B-5C
R406	A-5F
R407	A-5F
R408	B-5C
R421	B-4C
R422	A-4F
R424	B-4C
R425	B-4C
R432	A-4F
R433	A-4F
R436	A-4F
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R444	A-5E
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R449	A-5D
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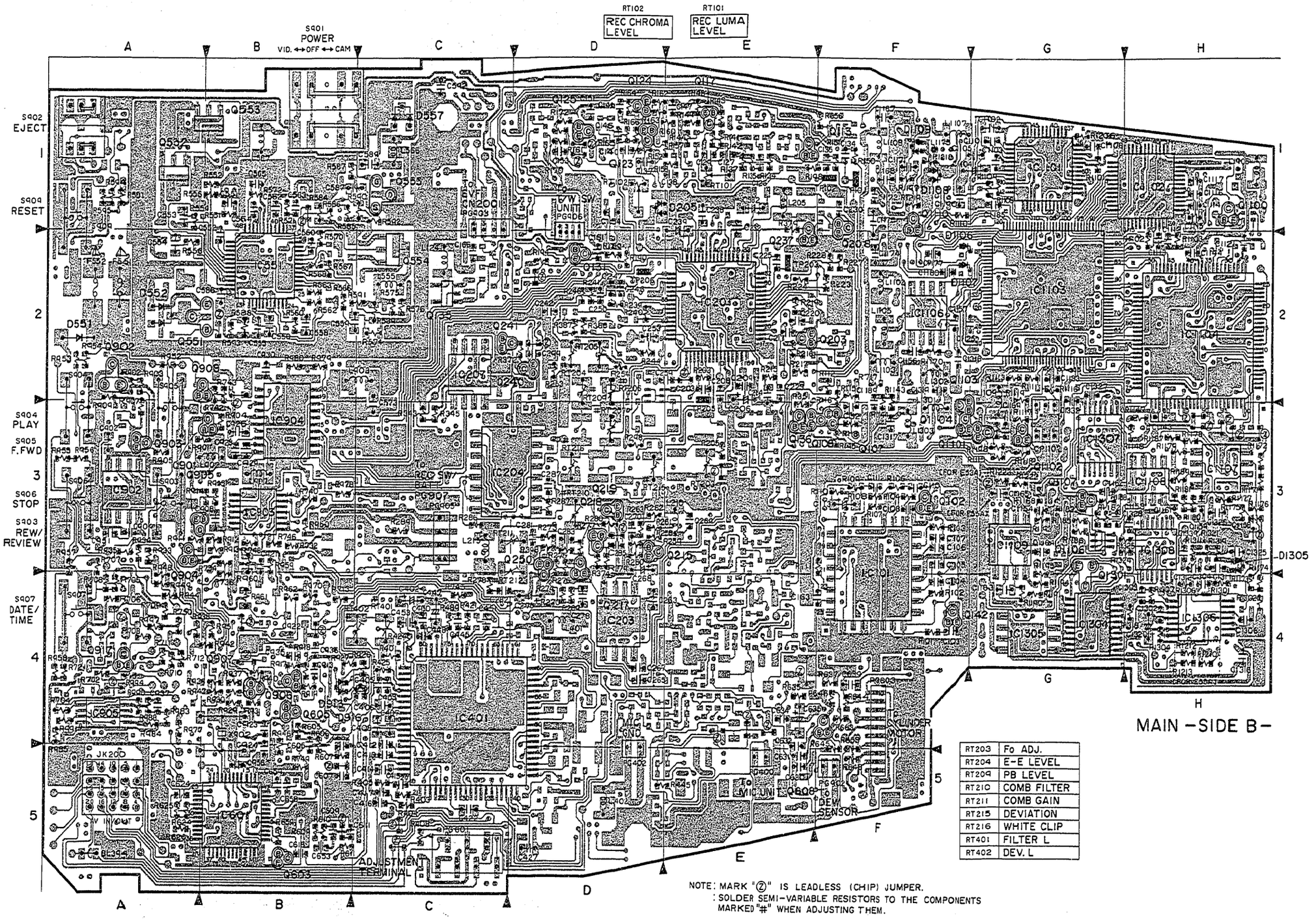
R719	A-5G
R721	B-4A
R732	B-3B
R734	B-3B
R736	B-4B
R737	A-3G
R738	A-4G
R739	A-4G
R740	B-3B
R742	B-2B
R743	B-2B
R745	B-4C
R746	B-3B
R747	A-3G
R748	B-3B
R749	B-5B
R750	B-4A
R901	B-3A
R902	B-2A
R903	B-2A
R904	B-3B
R905	B-3A
R907	B-3A
R908	A-3H
R909	B-2A
R910	A-3H
R911	B-3A
R912	B-3B
R913	B-3B
R914	B-3B
R915	B-3B
R916	A-3H
R917	B-4B
R918	B-4B
R919	B-4B
R920	A-4H
R921	A-4H
R926	B-4C
R927	B-4B
R928	A-4G
R929	B-4B
R930	B-4B
R931	B-4B
R933	B-3A
R934	B-3A
R935	B-3A
R936	B-4B
R937	B-4B
R938	B-4A
R939	A-4H
R940	B-4B
R941	A-3H
R942	B-4B
R944	B-4A
R946	B-5B
R947	B-4B
R948	B-4A
R949	B-4A
R950	B-3B
R951	B-4B
R952	B-2A
R953	B-2A
R954	B-2A
R955	B-3A
R956	B-3A
R957	B-3A
R958	B-4A
R959	B-3B
R960	B-3B
R961	B-4B
R962	B-4B
R963	A-3G
R964	A-4G
R965	A-4G
R967	A-5G
R968	A-4G
R970	B-4B
R973	A-3H
R974	A-3H
R975	A-3H
R976	A-3H
R977	B-4A
R978	B-3B
R979	B-2B
R980	B-2B
R983	B-4A
R984	B-4A
R985	B-4A
R986	A-4H
R987	A-4H
R988	B-4A
R989	A-4H
R990	B-4A
R991	B-4A
R994	B-4A
R997	B-4A
R1100	A-1B
R1101	B-1G
R1102	B-2H
R1103	B-2H
R1106	A-3A
R1107	A-1A
R1108	B-1G
R1109	B-1G
R1110	B-1F
R1111	B-2G
R1113	B-2G
R1114	B-3G
R1115	B-3G
R1116	B-2G
R1117	B-3G
R1118	B-3G
R1119	B-2G
R1123	A-2B
R1143	B-2F
R1144	B-3F
R1147	B-3H
R1148	B-3H
R1150	A-1A
R1151	A-2B
R1153	A-2A
R1154	A-1A
R1155	A-2A
R1156	A-1A
R1157	A-2A
R1160	A-2A
R1162	A-3A
R1163	A-2A
R1168	B-3G
R1170	B-2F
R1171	B-3H
R1172	B-3H
R1173	B-4H
R1174	B-4H
R1175	B-3H
R1176	B-3H
R1177	B-3H
R1178	B-3H
R1179	B-3H
R1180	B-3H
R1181	B-3H
R1182	B-3G
R1183	B-3G
R1185	B-3G
R1186	B-3G
R1187	B-3H
R1188	B-3G
R1189	B-3H
R1190	B-4G
R1191	B-4G
R1193	B-3G
R1194	B-4G
R1195	B-3G
R1197	B-1F
R1198	B-3G
R1206	B-1G
R1207	A-2B
R1208	A-1C
R1210	B-4H
R1211	A-2A
R1212	B-4H
R1213	B-4H
R1215	A-3B
R1216	A-3B
R1217	A-2B
R1218	B-1F
R1219	B-1F
R1220	A-1A
R1221	A-1A
R1222	B-3G
R1223	B-3G
R1301	B-4H
R1302	B-4H
R1304	B-4H
R1306	B-4H
R1307	B-4H
R1311	B-3H
R1316	A-3B
R1317	A-3B
R1318	B-4H
R1319	B-3H
R1321	B-3H
R1322	A-3B
R1323	A-4B
R1324	B-3G
R1325	B-3G
R1326	A-4B
RT	
RT101	B-1E
RT102	B-1D
RT203	B-3E
RT204	B-2D
RT205	B-2D
RT206	B-2D
RT207	B-3D
RT209	B-2D
RT210	B-3D
RT211	B-3C
RT212	B-4C
RT215	B-3D
RT216	B-3D
RT401	B-4C
RT402	B-4C
S	
S901	B-1B
S902	B-1A
S903	B-3A
S904	B-2A
S905	B-2A
S906	B-3A
S907	B-4A
S909	B-1A
T	
T551	A-1F
TL	
TL403	A-4F
TL404	A-4F
TL408	A-5F
TL1175	B-1F
TP	
TP101	B-1F
TP102	B-1F
TP203	B-2E
TP205	B-2E
TP206	B-2D
X	
X201	A-2C
X601	A-5G
X901	A-3G
X902	B-4B
X1101	A-1B
ZD	
ZD901	B-3A

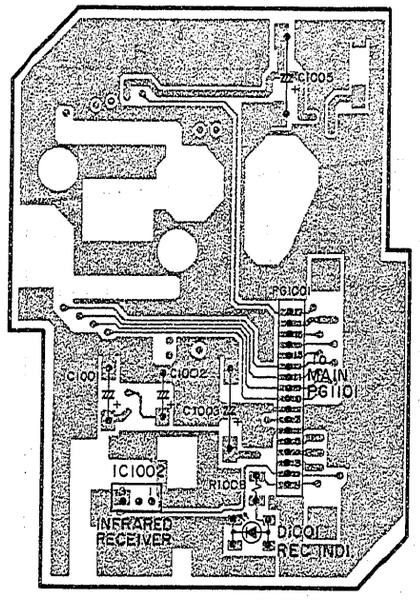
MAIN CIRCUIT BOARD (SIDE-B)



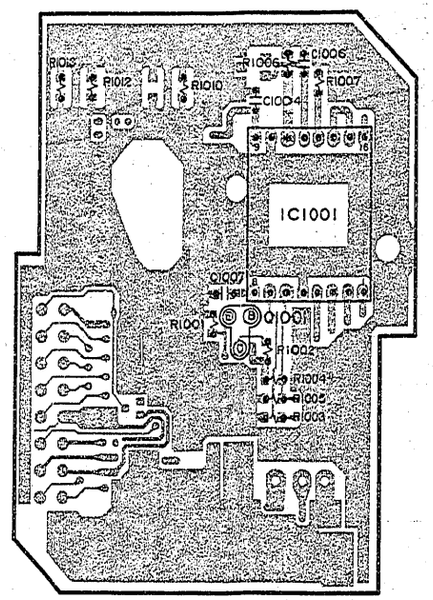
RT203	Fo ADJ.
RT204	E-E LEVEL
RT209	PB LEVEL
RT210	COMB FILTER
RT211	COMB GAIN
RT215	DEVIATION
RT216	WHITE CLIP
RT401	FILTER L
RT402	DEV. L

NOTE: MARK "Ⓩ" IS LEADLESS (CHIP) JUMPER.
: SOLDER SEMI-VARIABLE RESISTORS TO THE COMPONENTS MARKED "#" WHEN ADJUSTING THEM.

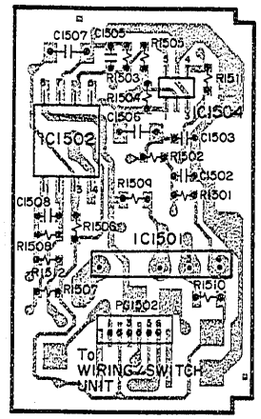
SENSOR. REC SW/BATT.. TROUBLE SENSOR. H. GYRO. V. GYRO CIRCUIT BOARDS



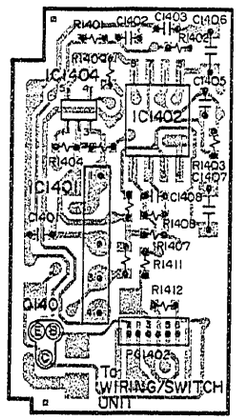
SENSOR —SIDE A—
(PATTERN No.155135-6)



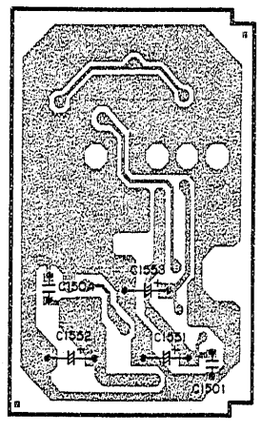
SENSOR —SIDE B—



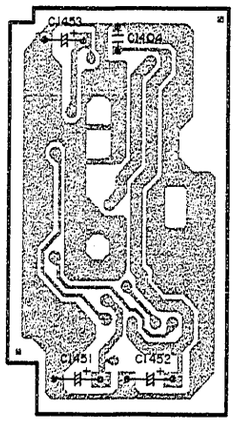
H. GYRO (HTS9558C)
—SIDE A—



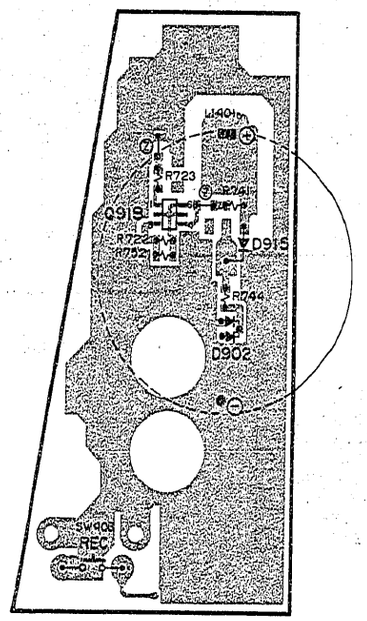
V.GYRO (HTS9557C)
—SIDE A—



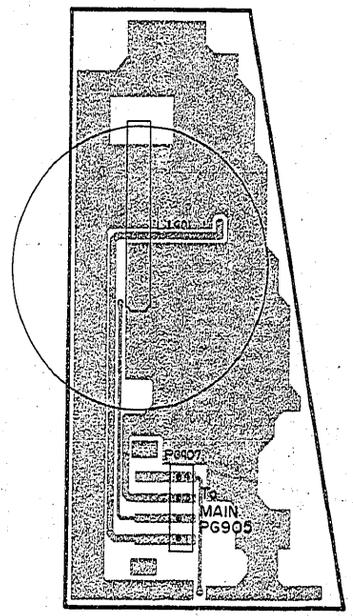
H. GYRO(HTS9558C)
—SIDE B—



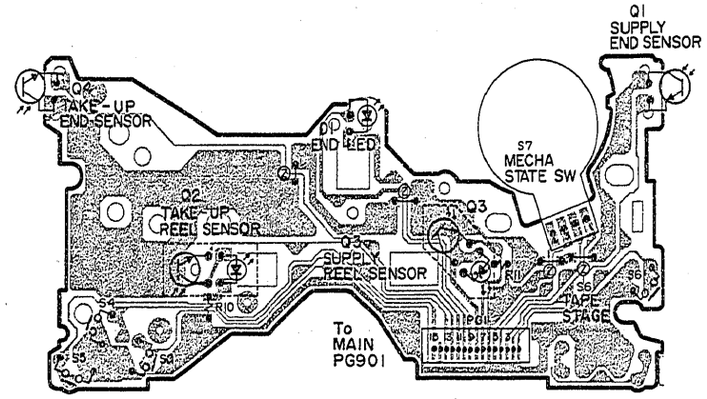
V.GYRO(HTS9557C)
—SIDE B—



REC SW/BATT.-SIDE A-
(PATTERN No. 155135-6)

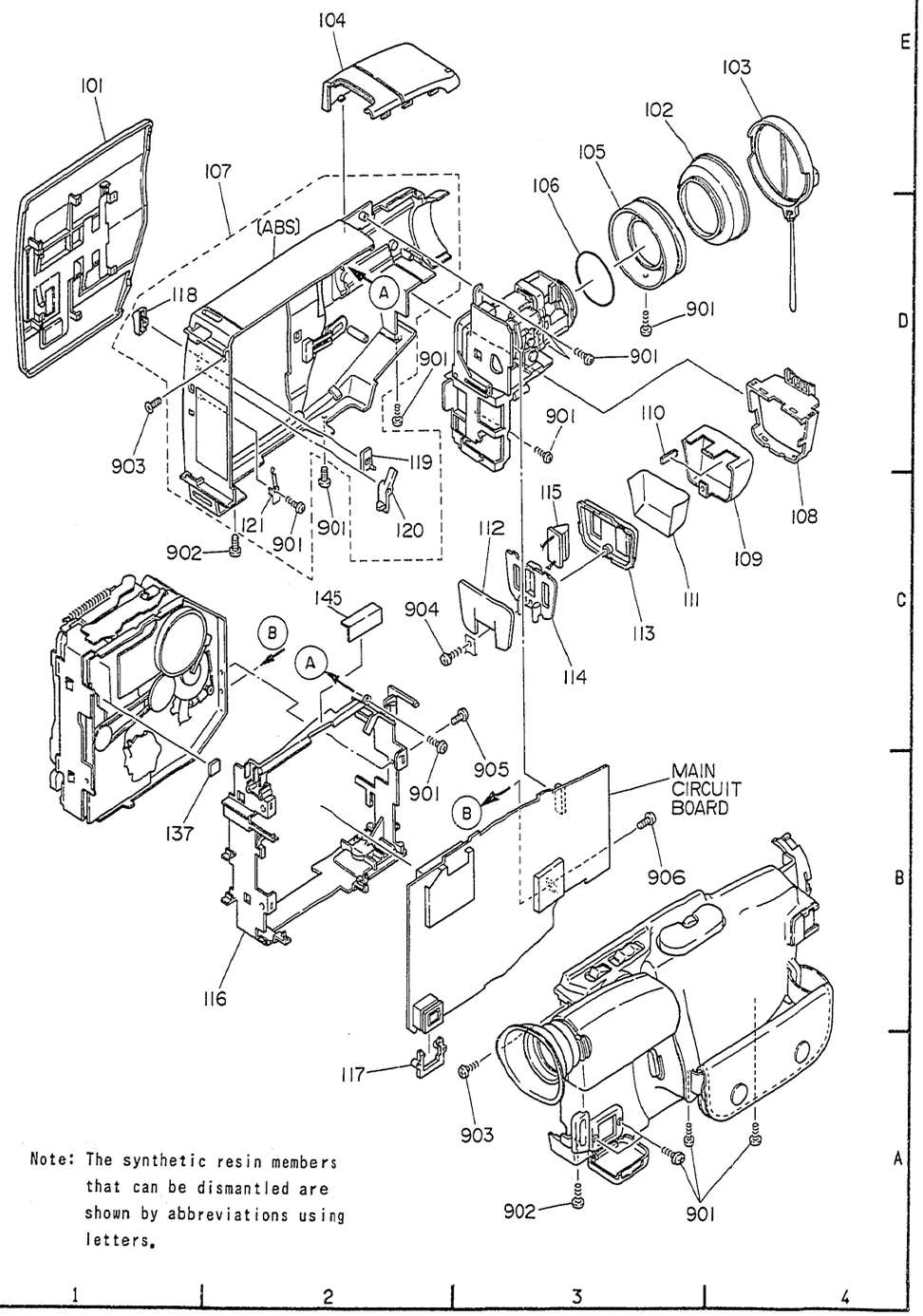


REC SW/BATT.-SIDE B-



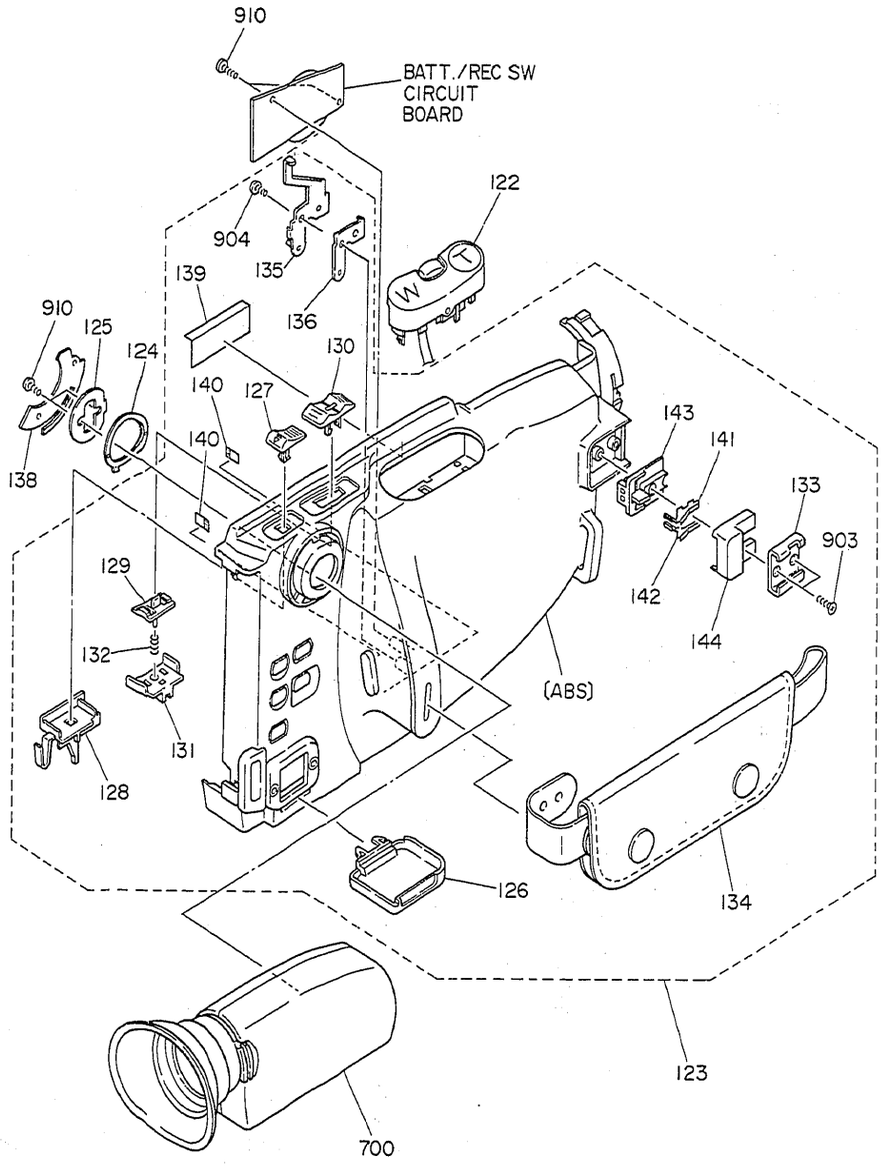
TROUBLE SENSOR (HTS 9551A)

EXPLODED VIEWS
CABINET SECTION 1 (LEFT CASE SIDE AND VCR BLOCK)



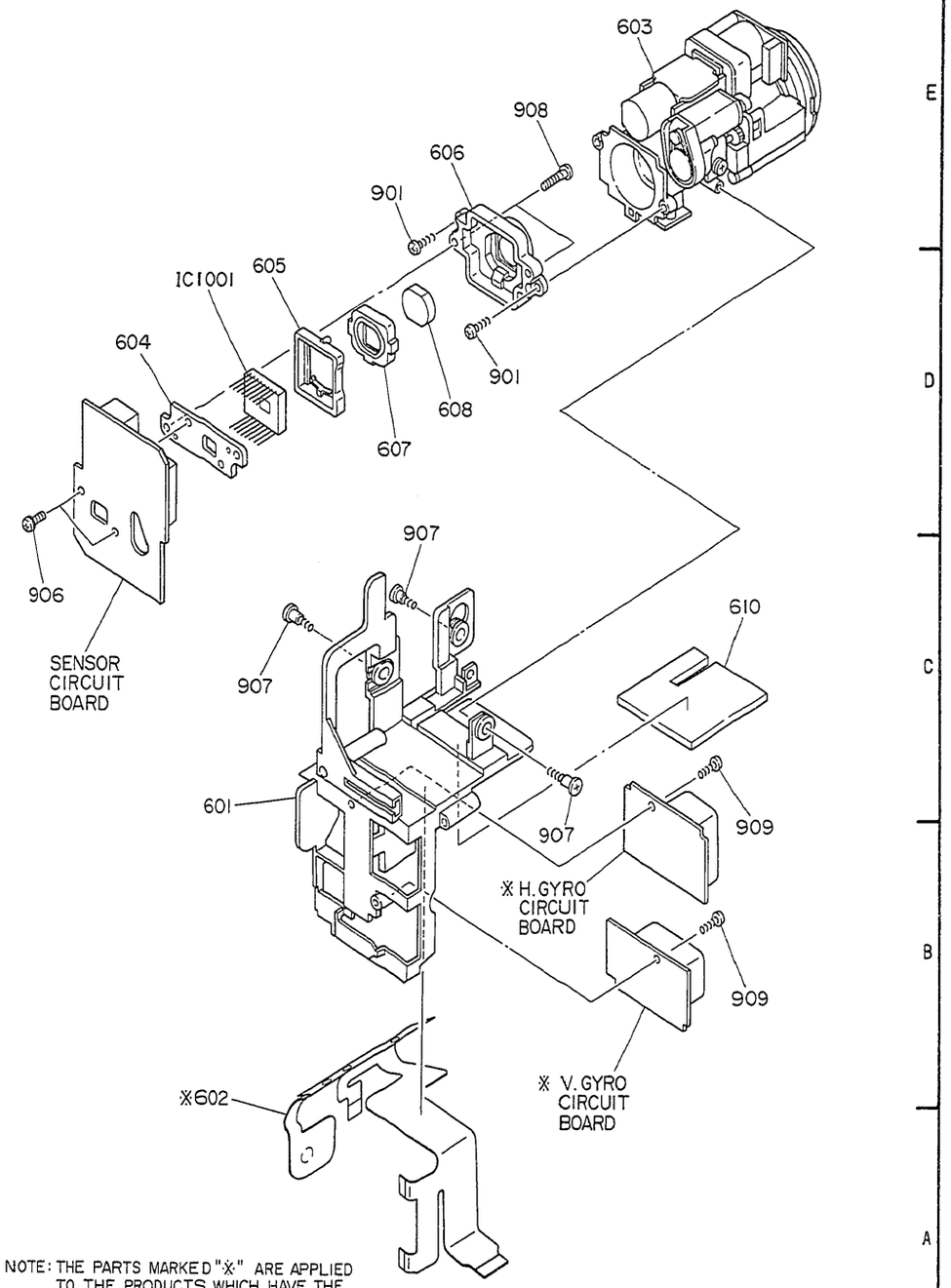
Note: The synthetic resin members that can be dismantled are shown by abbreviations using letters.

CABINET SECTION 2 (RIGHT CASE SIDE)



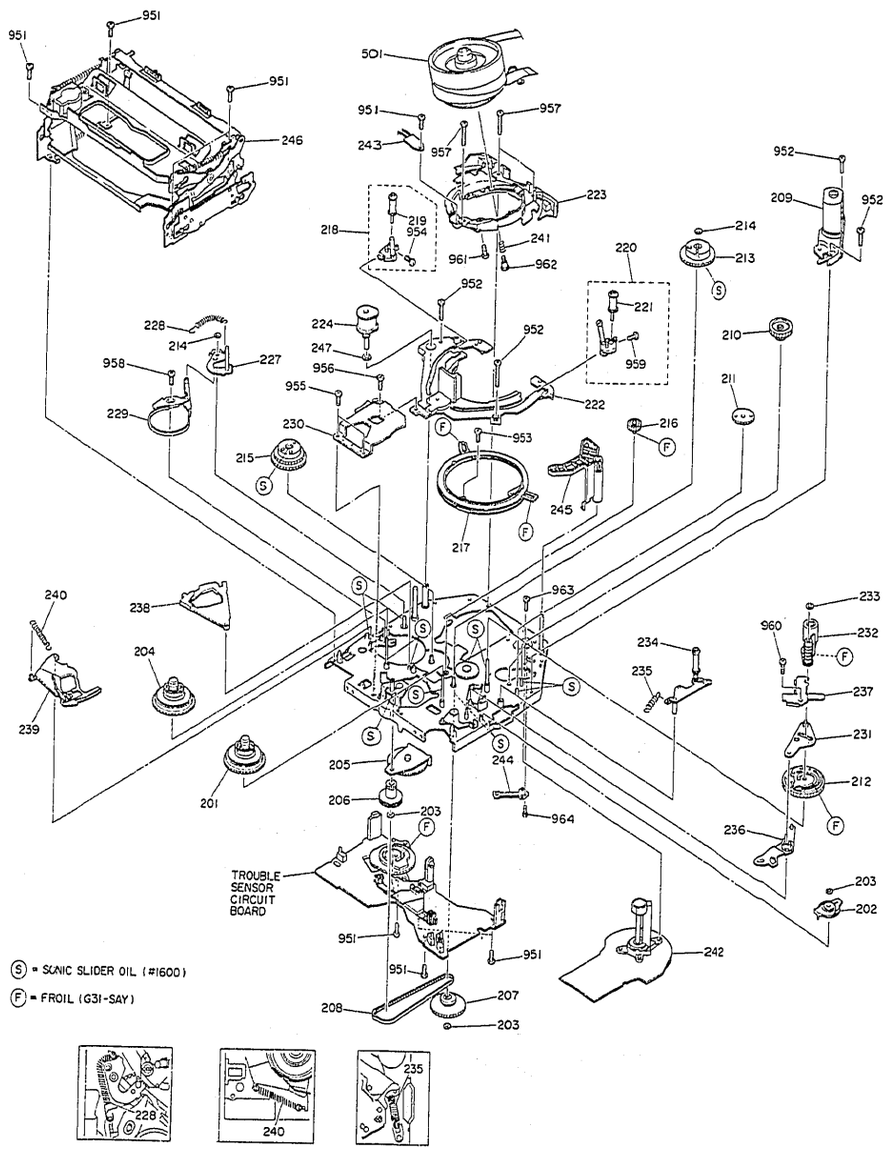
Note: The synthetic resin members that can be dismantled are shown by abbreviations using letters.

CAMERA BLOCK SECTION

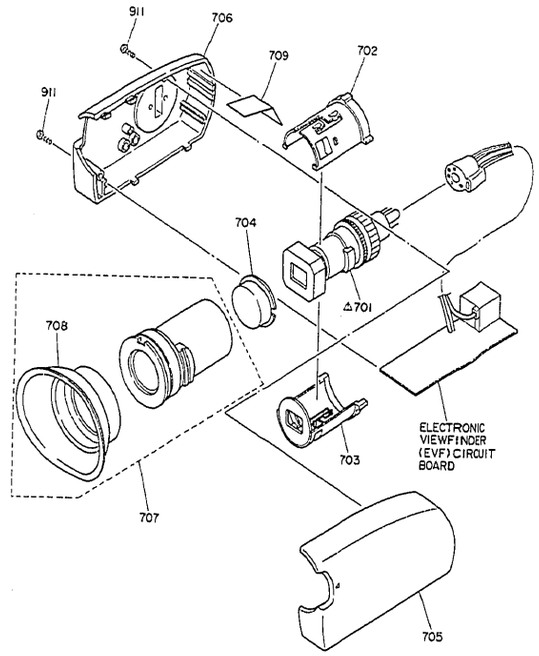


NOTE: THE PARTS MARKED "※" ARE APPLIED TO THE PRODUCTS WHICH HAVE THE EIS FUNCTION.

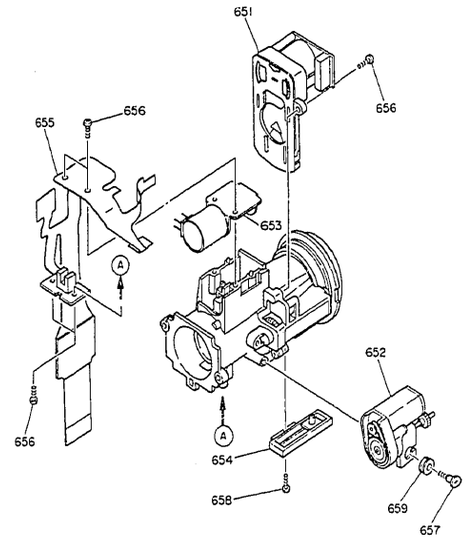
CHASSIS SECTION



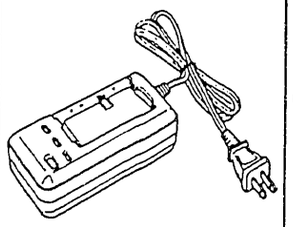
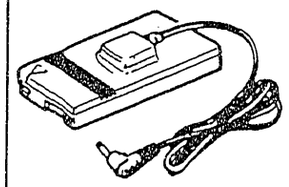
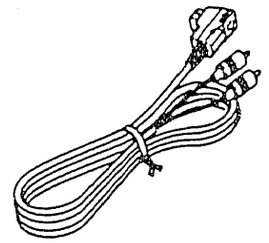
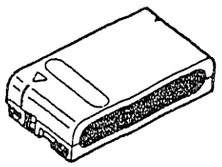
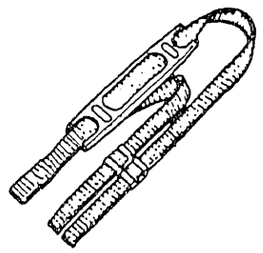
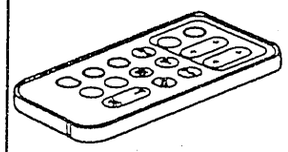
ELECTRONIC VIEWFINDER (EVF) SECTION



LENS BLOCK SECTION



ACCESSORIS

⚠802	803	804
		
⚠	806	807
		

REPLACEMENT PARTS LIST

SYMBOL-NO	P-NO	DESCRIPTION
		MECHANISM SECTION
101	4717391	LID, CASSETTE (FOR E53A & E53A(PX))
101	4717392	LID, CASSETTE (FOR E55A)
102	4799191	HOOD, LENS
103	4798761	CAP, FOOD
104	4725539	WINDOW, IR
105	4716973	RING, LENS
106	4799291	RING, LENS
107	4717001	CASE, SIDE(L) (FOR E53A & E53A(PX))
107	4717002	CASE, SIDE(L) (FOR E55A)
108	4716962	CASE, MICROPHONE
109	6680221	METAL
110	6568341	CUSHION
111	4345051	CUSHION
112	6568311	CUSHION
113	6408542	HOLDER, MICROPHONE
114	6408551	HOLDER, MICROPHONE
115	5422701	MICROPHONE
116	6186491	FRAME, MECHANISM
117	6408603	HOLDER
118	4750433	KNOB, EJECT
119	6408591	HOLDER
120	6443182	LEVER, EJECT
121	6529111	SPRING
122	5604851	SWITCH, T/W
123	4716981	CASE, SIDE(R)
124	4899872	SPRING
125	4826122	BRACKET
126	4725552	COVER, CONNECTOR
127	4752071	KNOB, EJECT
128	6408571	HOLDER
129	4750451	KNOB, POWER
130	4752261	HOLDER, POWER KNOB
131	6408581	HOLDER
132	6305733	SPRING
133	7797471	SHOE
134	6336821	STRAP, HAND
135	4826111	PLATE, STRAP
136	4344712	SHEET
137	4592461	SPACER
138	4345032	SHEET, EVF
139	4391831	SHEET
140	4592441	SPACER
141	4590292	TERMINAL L
142	4590302	TERMINAL R
143	4590282	HOLDER
144	4714821	COVER, TERMINAL
145	4345141	SPACER
201	6404061	REEL DISK, TAKE-UP
202	6406112	GEAR
203	7787733	WASHER
204	6404071	REEL DISK, SUPPLY
205	6401643	GEAR, IDLER
206	6406211	GEAR
207	6406032	GEAR
208	6358471	BELT
209	4589112	LOADING MOTOR BLOCK
210	6376311	GEAR
211	6406081	GEAR
212	6406242	GEAR
213	6405832	GEAR
214	7787731	WASHER
215	6405823	GEAR
216	6406131	GEAR
217	4588462	RING, LOADING
218	4589352	BASE, GUIDE ROLLER(I)
219	6424237	GUIDE ROLLER
220	4589362	BASE, GUIDE ROLLER(O)
221	4588903	GUIDE ROLLER
222	4587794	PLATE
223	4589003	BASE, CYLINDER
224	6406151	IMPEDANCE ROLLER
227	45890113	ARM, TENSION
228	6554231	SPRING
229	45885523	BAND, TENSION
230	6408831	COVER, IDLER
231	4826651	PLATE, CAM
232	4588292	ARM, PRESSURE ROLLER
233	7787571	WASHER
234	4588701	ARM, PULL OUT
235	6554201	SPRING
236	4588233	LEVER
237	45885313	PLATE
238	4588425	PLATE
239	4588352	BRAKE
240	6554221	SPRING
241	6554213	SPRING
242	5579651	MOTOR, CAPSTAN
243	0116201	DEW SENSOR
244	5794021	BRUSH
245	4588992	COVER, TAPE
246	4589092	CASSETTE HOLDER AS
247	7789314	WASHER
501	5435741	CYLINDER ASSY (CY-53C)
601	6186591	FRAME, LENS
602	5604871	SWITCH(FOR E55A)
603	6951552	LENS, ZOOM
604	4899861	PLATE, SENSOR
605	6338582	HOLDER, SENSOR
606	6338572	LID, SENSOR
607	6338561	RUBBER
608	5783251	FILTER
610	6568321	CUSHION
651	6951581	IRIS BLOCK
652	6951582	MOTOR, ZOOM
653	6951593	MOTOR, AUTO FOCUS
654	6951584	SENSOR
655	6951591	CONNECTOR FLEXIBLE
656	6951586	SCREW
657	6951592	SCREW
658	6951588	SCREW
659	6951589	RUBBER
700	7055271	EVF ASSY
⚠701	5319061	CRT
702	4715251	CASE, CRT(U)
703	4715241	CASE, CRT(B)
704	4592241	COVER
705	4717316	CASE, EVF(R)
706	4715863	CASE, EVF(L)
707	4715333	LENS, EVF
708	4798482	CAP, EYE
709	4344291	SPACER
901	7775946	SCREW (2X6)
902	7775963	SCREW(2X3)
903	8639106	SCREW
904	86911063	SCREW (2X6)
905	7773891	SCREW
906	8650103	SCREW(2X3)

SYMBOL-NO	P-NO	DESCRIPTION
907	7773591	SCREW(2X4)
908	7775977	SCREW(2X7)
909	8691105	SCREW(2X5)(FOR E55A)
910	7775945	SCREW(2X5)
911	8619003	SCREW 1.7X5
951	8712024	PAN HEAD SCREW-1.4MMDX3MM
952	8700272	SCREW(1.7X5)
953	7775921	SCREW(1.4X2)
954	8714004	SCREW(1.4X2.5)
955	8712024	PAN HEAD SCREW-1.4MMDX3MM
956	86190653	SCREW(1.7X6)
957	8700976	SCREW(1.7X8.0)
958	7770791	SCREW
959	8712904	SCREW(1.4X2.0)
960	8619063	SCREW(1.7X3)
961	8711105	SCREW,2X5
962	7785885	SCREW
963	8700264	1.7X2 SCREW
964	87411033	SCREW(2X3)
		ACCESSORIES
△802	4137811	AC ADAPTER
803	5861832	CORD,EXTERNAL POWER ADAPTER
804	5860783	CORD,AV OUTPUT
805	4135791	RF CONVERTER
806	4131016	STRAP,SHOULDER
807	5616352	REMOTE HAND SET(FOR E53A(PX))
807	5616581	REMOTE HAND SET(FOR E53A & E55A)
808	4592071	HOLDER,REMOCON(FOR E53A(PX))
809	7035263	CARRYING BAG(FOR E53A(PX))
		VTR SECTION
C0101	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0103	0893197	CERAMIC CHIP 0.022UF+-10% 25V
C0104	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C0105	0893122	CERAMIC CHIP 47PF+-5% 50V
C0106	0893122	CERAMIC CHIP 47PF+-5% 50V
C0107	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C0108	0893197	CERAMIC CHIP 0.022UF+-10% 25V
C0110	0893197	CERAMIC CHIP 0.022UF+-10% 25V
C0111	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C0112	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0118	0893121	CERAMIC CHIP 39PF+-5% 50V
C0119	0893119	CERAMIC CHIP 33PF+-5% 50V
C0120	0893122	CERAMIC CHIP 47PF+-5% 50V
C0121	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C0125	0893149	CERAMIC CHIP 12PF+-5% 50V
C0126	0893158	CERAMIC CHIP 56PF+-5% 50V
C0127	0893197	CERAMIC CHIP 0.022UF+-10% 25V
C0128	0893167	CERAMIC CHIP 270PF+-5% 50V
C0129	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0130	0893159	CERAMIC CHIP 68PF+-5% 50V
C0131	0893117	CERAMIC CHIP 22PF+-5% 50V
C0134	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0135	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0137	0893004	CERAMIC CHIP 0.047UF+-10% 16V
C0138	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0140	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0141	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0142	0202158	CERAMIC CHIP 75PF+-5% 50V
C0143	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0145	0893105	CERAMIC CHIP 3PF+-25% 50V
C0146	0893215	CERAMIC CHIP 3300PF+-10% 50V
C0147	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0149	0893214	CERAMIC CHIP 2700PF+-10% 50V
C0150	0202158	CERAMIC CHIP 75PF+-5% 50V
C0151	0893121	CERAMIC CHIP 39PF+-5% 50V
C0152	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0153	0893167	CERAMIC CHIP 270PF+-5% 50V
C0154	0893162	CERAMIC CHIP 100PF+-5% 50V
C0157	0893122	CERAMIC CHIP 47PF+-5% 50V
C0161	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0163	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0166	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0168	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0169	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0172	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C0177	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0203	0893102	CERAMIC CHIP 1.0PF+-0.25% 50V
C0204	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0205	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0208	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0209	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C0213	0893163	CERAMIC CHIP 120PF+-5% 50V
C0214	0893059	CERAMIC CHIP 0.47UF+80-20% 16V
C0216	0893122	CERAMIC CHIP 47PF+-5% 50V
C0218	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0220	0893124	CERAMIC CHIP 68PF+-5% 50V
C0223	0893197	CERAMIC CHIP 0.022UF+-10% 25V
C0225	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0227	0893197	CERAMIC CHIP 0.022UF+-10% 25V
C0229	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0230	0893114	CERAMIC CHIP 12PF+-5% 50V
C0232	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0233	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0237	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0238	0893062	CERAMIC CHIP 1UF+80-20% 16V
C0241	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0242	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0244	0893008	CERAMIC CHIP 0.1UF +-10% 16V
C0246	0893162	CERAMIC CHIP 100PF+-5% 50V
C0247	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C0249	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0250	0893197	CERAMIC CHIP 0.022UF+-10% 25V
C0251	0893117	CERAMIC CHIP 22PF+-5% 50V
C0253	0893013	CERAMIC CHIP 0.22UF+-10% 16V
C0256	0893197	CERAMIC CHIP 0.022UF+-10% 25V
C0257	0893166	CERAMIC CHIP 220PF+-5% 50V
C0258	0893165	CERAMIC CHIP 180PF+-5% 50V
C0259	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0260	0893197	CERAMIC CHIP 0.022UF+-10% 25V
C0262	0893062	CERAMIC CHIP 1UF+80-20% 16V
C0263	0893062	CERAMIC CHIP 1UF+80-20% 16V
C0264	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0265	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0267	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0269	0893106	CERAMIC CHIP 4.0PF+-0.25% 50V
C0270	0893117	CERAMIC CHIP 22PF+-5% 50V
C0271	0893152	CERAMIC CHIP 18PF+-5% 50V
C0272	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0273	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0276	0893197	CERAMIC CHIP 0.022UF+-10% 25V
C0278	0893008	CERAMIC CHIP 0.1UF +-10% 16V
C0279	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0280	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0281	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0282	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0283	0893161	CERAMIC CHIP 82PF+-5% 50V

SYMBOL-NO	P-NO	DESCRIPTION
C0285	0893162	CERAMIC CHIP 100PF+-5% 50V
C0287	0893166	CERAMIC CHIP 220PF+-5% 50V
C0293	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0296	0893163	CERAMIC CHIP 120PF+-5% 50V
C0298	0893117	CERAMIC CHIP 22PF+-5% 50V
C0299	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C0374	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C0375	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C0376	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0381	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C0390	0893004	CERAMIC CHIP 0.047UF+-10% 16V
C0391	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0394	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0400	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0401	0893153	CERAMIC CHIP 22PF+-5% 50V
C0403	0893175	CERAMIC CHIP 1000PF+-5% 50V
C0405	0893175	CERAMIC CHIP 1000PF+-5% 50V
C0406	0893059	CERAMIC CHIP 0.47UF+80-20% 16V
C0407	0893035	CERAMIC CHIP 2200PF+-10% 50V
C0408	0893033	CERAMIC CHIP 1500PF+-10% 50V
C0412	0893175	CERAMIC CHIP 1000PF+-5% 50V
C0413	0893175	CERAMIC CHIP 1000PF+-5% 50V
C0414	0893059	CERAMIC CHIP 0.47UF+80-20% 16V
C0415	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0416	0893171	CERAMIC CHIP 470PF+-5% 50V
C0417	0893215	CERAMIC CHIP 3300PF+-10% 50V
C0419	0893062	CERAMIC CHIP 1UF+80-20% 16V
C0420	0893062	CERAMIC CHIP 1UF+80-20% 16V
C0421	0893062	CERAMIC CHIP 1UF+80-20% 16V
C0422	0893062	CERAMIC CHIP 1UF+80-20% 16V
C0427	0893062	CERAMIC CHIP 1UF+80-20% 16V
C0445	0893166	CERAMIC CHIP 220PF+-5% 50V
C0448	0893197	CERAMIC CHIP 0.022UF+-10% 25V
C0449	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0450	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C0451	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C0452	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C0453	0893062	CERAMIC CHIP 1UF+80-20% 16V
C0466	0893008	CERAMIC CHIP 0.1UF +-10% 16V
C0467	0893186	CERAMIC CHIP 0.033UF+-10% 16V
C0469	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0470	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0471	0893189	CERAMIC CHIP 0.0056UF+-10% 25V
C0472	0893184	CERAMIC CHIP 0.022UF+-10% 16V
C0473	0893184	CERAMIC CHIP 0.022UF+-10% 16V
C0474	0893242	CERAMIC CHIP 0.022UF+80-20% 50V
C0475	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0476	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0477	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0491	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0492	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0495	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0496	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0551	0893155	CERAMIC CHIP 33PF+-5% 50V
C0552	0893217	CERAMIC CHIP 4700PF+-10% 50V
C0553	0893014	CERAMIC CHIP 0.01UF+-10% 25V
C0554	0893014	CERAMIC CHIP 0.01UF+-10% 25V
C0555	0209942	CERAMIC CHIP 100PF+-5% 50V
C0556	0893008	CERAMIC CHIP 0.1UF +-10% 16V
C0558	0893008	CERAMIC CHIP 0.1UF +-10% 16V
C0559	0893008	CERAMIC CHIP 0.1UF +-10% 16V
C0560	0893202	CERAMIC CHIP 330PF+-10% 50V
C0562	0893203	CERAMIC CHIP 390PF+-10% 50V
C0563	0893158	CERAMIC CHIP 56PF+-5% 50V
C0564	0893202	CERAMIC CHIP 330PF+-10% 50V
C0565	0893155	CERAMIC CHIP 33PF+-5% 50V
C0573	0893062	CERAMIC CHIP 1UF+80-20% 16V
C0579	0893062	CERAMIC CHIP 1UF+80-20% 16V
C0586	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C0587	0893062	CERAMIC CHIP 1UF+80-20% 16V
C0588	0893062	CERAMIC CHIP 1UF+80-20% 16V
C0589	0893062	CERAMIC CHIP 1UF+80-20% 16V
C0591	0893062	CERAMIC CHIP 1UF+80-20% 16V
C0592	0893062	CERAMIC CHIP 1UF+80-20% 16V
C0594	0893062	CERAMIC CHIP 1UF+80-20% 16V
C0605	0893206	CERAMIC CHIP 680PF+-10% 50V
C0607	0893199	CERAMIC CHIP 220PF+-10% 50V
C0609	0893206	CERAMIC CHIP 680PF+-10% 50V
C0611	0893202	CERAMIC CHIP 330PF+-10% 50V
C0618	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C0619	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C0620	0893122	CERAMIC CHIP 47PF+-5% 50V
C0621	0893122	CERAMIC CHIP 47PF+-5% 50V
C0622	0893184	CERAMIC CHIP 0.022UF+-10% 16V
C0623	0893184	CERAMIC CHIP 0.022UF+-10% 16V
C0624	0893184	CERAMIC CHIP 0.022UF+-10% 16V
C0630	0893186	CERAMIC CHIP 0.033UF+-10% 16V
C0631	0893186	CERAMIC CHIP 0.033UF+-10% 16V
C0632	0893186	CERAMIC CHIP 0.033UF+-10% 16V
C0634	0893188	CERAMIC CHIP 0.047UF+-10% 16V
C0639	0893011	CERAMIC CHIP 0.15UF+-10% 16V
C0641	0893008	CERAMIC CHIP 0.1UF +-10% 16V
C0642	0893182	CERAMIC CHIP 0.015UF+-10% 16V
C0643	0893182	CERAMIC CHIP 0.015UF+-10% 16V
C0644	0893182	CERAMIC CHIP 0.015UF+-10% 16V
C0645	0893182	CERAMIC CHIP 0.015UF+-10% 16V
C0649	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C0650	0893055	CERAMIC CHIP 0.1UF+80-20% 16V
C0652	0893202	CERAMIC CHIP 330PF+-10% 50V
C0653	0893204	CERAMIC CHIP 470PF+-10% 50V
C0902	0893059	CERAMIC CHIP 0.47UF+80-20% 16V
C0903	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0904	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C0908	0893062	CERAMIC CHIP 1UF+80-20% 16V
C0910	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C0912	0893062	CERAMIC CHIP 1UF+80-20% 16V
C0913	0893175	CERAMIC CHIP 1000PF+-5% 50V
C0919	0893115	CERAMIC CHIP 15PF+-5% 50V
C0920	0893115	CERAMIC CHIP 15PF+-5% 50V
C0921	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0922	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0923	0893118	CERAMIC CHIP 27PF+-5% 50V
C0924	0893118	CERAMIC CHIP 27PF+-5% 50V
C0926	0893062	CERAMIC CHIP 1UF+80-20% 16V
C0928	0893119	CERAMIC CHIP 33PF+-5% 50V
C0929	0893126	CERAMIC CHIP 100PF+-5% 50V
C0930	0893131	CERAMIC CHIP 220PF+-5% 50V
C0933	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0934	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0935	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0936	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0937	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C0942	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0947	0893062	CERAMIC CHIP 1UF+80-20% 16V
C0948	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0949	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0951	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C0952	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0953	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0956	0893162	CERAMIC CHIP 100PF+-5% 50V

SYMBOL-NO	P-NO	DESCRIPTION
C1101	0893117	CERAMIC CHIP 22PF+-5% 50V
C1102	0893008	CERAMIC CHIP 0.1UF +-10% 16V
C1103	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C1105	0893014	CERAMIC CHIP 0.01UF+-10% 25V
C1106	0893027	CERAMIC CHIP 0.1UF+-10% 25V
C1107	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1109	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C1111	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C1112	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1113	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1114	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1115	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1116	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1117	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C1118	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C1120	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C1121	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1122	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C1123	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C1124	0893062	CERAMIC CHIP 1UF+80-20% 16V
C1125	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C1126	0893116	CERAMIC CHIP 18PF+-5% 50V
C1127	0893117	CERAMIC CHIP 22PF+-5% 50V
C1133	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C1143	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C1144	0893227	CERAMIC CHIP 0.22UF+80-20% 16V
C1145	0893227	CERAMIC CHIP 0.22UF+80-20% 16V
C1146	0893062	CERAMIC CHIP 1UF+80-20% 16V
C1148	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C1149	0893239	CERAMIC CHIP 0.01UF+80-20% 50V(E55A)
C1151	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C1152	0893239	CERAMIC CHIP 0.01UF+80-20% 50V(E55A)
C1153	0893133	CERAMIC CHIP 330PF+-5% 50V
C1154	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1156	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C1157	0893118	CERAMIC CHIP 27PF+-5% 50V
C1158	0893133	CERAMIC CHIP 330PF+-5% 50V
C1159	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C1161	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C1162	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C1163	0893062	CERAMIC CHIP 1UF+80-20% 16V
C1164	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C1165	0893062	CERAMIC CHIP 1UF+80-20% 16V(E55A)
C1166	0893227	CERAMIC CHIP 0.22UF+80-20% 16V
C1167	0893062	CERAMIC CHIP 1UF+80-20% 16V
C1168	0893062	CERAMIC CHIP 1UF+80-20% 16V
C1169	0893117	CERAMIC CHIP 22PF+-5% 50V
C1170	0893131	CERAMIC CHIP 220PF+-5% 50V
C1171	0893059	CERAMIC CHIP 0.47UF+80-20% 16V
C1172	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1174	0893062	CERAMIC CHIP 1UF+80-20% 16V
C1175	0893062	CERAMIC CHIP 1UF+80-20% 16V
C1176	0893062	CERAMIC CHIP 1UF+80-20% 16V
C1177	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1179	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1180	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1181	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1185	0893116	CERAMIC CHIP 18PF+-5% 50V
C1186	0893128	CERAMIC CHIP 150PF+-5% 50V
C1187	0893128	CERAMIC CHIP 150PF+-5% 50V
C1189	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1190	0893062	CERAMIC CHIP 1UF+80-20% 16V
C1192	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1193	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C1302	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C1303	0893188	CERAMIC CHIP 0.047UF+-10% 16V
C1304	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C1306	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C1309	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C1311	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C1312	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C1316	0893188	CERAMIC CHIP 0.047UF+-10% 16V
C1317	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C1318	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C1319	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C1325	0893227	CERAMIC CHIP 0.22UF+80-20% 16V
C1326	0893062	CERAMIC CHIP 1UF+80-20% 16V
C1327	0893227	CERAMIC CHIP 0.22UF+80-20% 16V
C1328	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C1329	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C1330	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C1331	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C1332	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C1333	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1334	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1335	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1336	0893215	CERAMIC CHIP 3300PF+-10% 50V
C1337	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1338	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1339	0893119	CERAMIC CHIP 33PF+-5% 50V
R0010	0103930 3	CHIP RESISTOR 390OHM+-5% 1/8W
R0011	0103838	CHIP RESISTOR 390OHM+-5% 0.1W
R0101	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R0102	0790007	CHIP RESISTOR 5.6 OHM+-5% 1/16W
R0103	0790007	CHIP RESISTOR 5.6 OHM+-5% 1/16W
R0104	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R0105	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R0106	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R0107	0790054	CHIP RESISTOR 18KOHM+-5% 1/16W
R0108	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W
R0109	0790036	CHIP RESISTOR 820 OHM+-5% 1/16W
R0110	0790075	CHIP RESISTOR 820KOHM+-5% 1/16W
R0111	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R0112	0790028	CHIP RESISTOR 220 OHM+-5% 1/16W
R0115	0790025	CHIP RESISTOR 150 OHM+-5% 1/16W
R0116	0790026	CHIP RESISTOR 150 OHM+-5% 1/16W
R0118	0790026	CHIP RESISTOR 150 OHM+-5% 1/16W
R0119	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0120	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0121	0790008	CHIP RESISTOR 6.8 OHM+-5% 1/16W
R0122	0790035	CHIP RESISTOR 680 OHM+-5% 1/16W
R0123	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R0124	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W
R0125	0790062	CHIP RESISTOR 68KOHM+-5% 1/16W
R0126	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W
R0134	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R0135	0790031	CHIP RESISTOR 330 OHM+-5% 1/16W
R0136	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R0137	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R0138	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R0140	0790043	CHIP RESISTOR 2.7KOHM+-5% 1/16W
R0141	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R0142	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W
R0143	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R0144	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W
R0146	0790031	CHIP RESISTOR 330 OHM+-5% 1/16W
R0148	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R0149	0790054	CHIP RESISTOR 18KOHM+-5% 1/16W
R0150	0790038	CHIP RESISTOR 1.2KOHM+-5% 1/16W
R0151	0790045	CHIP RESISTOR 3.9KOHM+-5% 1/16W

SYMBOL-NO	P-NO	DESCRIPTION
R0152	0790041	CHIP RESISTOR 1.8KOHM+-5% 1/16W
R0157	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W
R0158	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0160	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R0161	0790029	CHIP RESISTOR 270 OHM+-5% 1/16W
R0162	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W
R0163	0790062	CHIP RESISTOR 68KOHM+-5% 1/16W
R0164	0790058	CHIP RESISTOR 39KOHM+-5% 1/16W
R0165	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W
R0166	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W
R0169	0790035	CHIP RESISTOR 680 OHM+-5% 1/16W
R0170	0790027	CHIP RESISTOR 180 OHM+-5% 1/16W
R0172	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R0177	0790031	CHIP RESISTOR 330 OHM+-5% 1/16W
R0178	0790035	CHIP RESISTOR 680 OHM+-5% 1/16W
R0179	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W
R0182	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0186	0790028	CHIP RESISTOR 220 OHM+-5% 1/16W
R0189	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W
R0190	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W
R0194	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W
R0195	0790027	CHIP RESISTOR 180 OHM+-5% 1/16W
R0198	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0199	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0200	0104093	CHIP RESISTOR 75 OHM+-5% 1/16W
R0203	0790048	CHIP RESISTOR 6.8KOHM+-5% 1/16W
R0205	0790052	CHIP RESISTOR 12KOHM+-5% 1/16W
R0206	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W
R0207	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0208	0790038	CHIP RESISTOR 1.2KOHM+-5% 1/16W
R0213	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R0215	0790054	CHIP RESISTOR 18KOHM+-5% 1/16W
R0216	0790041	CHIP RESISTOR 1.8KOHM+-5% 1/16W
R0217	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0218	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W
R0219	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0223	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0224	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0227	0790062	CHIP RESISTOR 68KOHM+-5% 1/16W
R0228	0790062	CHIP RESISTOR 68KOHM+-5% 1/16W
R0235	0790041	CHIP RESISTOR 1.8KOHM+-5% 1/16W
R0236	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0237	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R0239	0790029	CHIP RESISTOR 270 OHM+-5% 1/16W
R0240	0790054	CHIP RESISTOR 18KOHM+-5% 1/16W
R0241	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W
R0244	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R0246	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R0250	0790041	CHIP RESISTOR 1.8KOHM+-5% 1/16W
R0253	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0254	0790038	CHIP RESISTOR 1.2KOHM+-5% 1/16W
R0255	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0256	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R0257	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R0258	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R0259	0790061	CHIP RESISTOR 56KOHM+-5% 1/16W
R0260	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0261	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R0262	0790032	CHIP RESISTOR 390 OHM+-5% 1/16W
R0263	0790035	CHIP RESISTOR 680 OHM+-5% 1/16W
R0264	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R0265	0790035	CHIP RESISTOR 680 OHM+-5% 1/16W
R0269	0790025	CHIP RESISTOR 120 OHM+-5% 1/16W
R0270	0790063	CHIP RESISTOR 82KOHM+-5% 1/16W
R0273	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R0274	0790058	CHIP RESISTOR 39KOHM+-5% 1/16W
R0275	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W
R0276	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0277	0790029	CHIP RESISTOR 270 OHM+-5% 1/16W
R0278	0790031	CHIP RESISTOR 330 OHM+-5% 1/16W
R0279	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W
R0280	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W
R0282	0790043	CHIP RESISTOR 2.7KOHM+-5% 1/16W
R0286	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0287	0790068	CHIP RESISTOR 220KOHM+-5% 1/16W
R0288	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R0289	0104093	CHIP RESISTOR 75 OHM+-5% 1/16W
R0291	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0295	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0296	0790043	CHIP RESISTOR 2.7KOHM+-5% 1/16W
R0298	0790045	CHIP RESISTOR 3.9KOHM+-5% 1/16W
R0343	0104529	CHIP RESISTOR 11KOHM+-1% 1/16W
R0345	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W
R0351	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0356	0790069	CHIP RESISTOR 0.27NOHM+-5% 1/16W
R0357	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0361	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0363	0790048	CHIP RESISTOR 6.8KOHM+-5% 1/16W
R0365	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R0366	0790038	CHIP RESISTOR 1.2KOHM+-5% 1/16W
R0367	0790043	CHIP RESISTOR 2.7KOHM+-5% 1/16W
R0368	0790043	CHIP RESISTOR 2.7KOHM+-5% 1/16W
R0369	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W
R0372	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0373	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R0374	0790056	CHIP RESISTOR 27KOHM+-5% 1/16W
R0375	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R0376	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0377	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0378	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0379	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0383	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R0387	0790036	CHIP RESISTOR 820 OHM+-5% 1/16W
R0388	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0391	0790052	CHIP RESISTOR 12KOHM+-5% 1/16W
R0394	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W
R0398	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0401	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R0403	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W
R0404	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R0405	0790041	CHIP RESISTOR 1.8KOHM+-5% 1/16W
R0406	0790053	CHIP RESISTOR 15KOHM+-5% 1/16W
R0407	0790058	CHIP RESISTOR 39KOHM+-5% 1/16W
R0408	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0421	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0422	0790036	CHIP RESISTOR 820 OHM+-5% 1/16W
R0423	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0424	0790066	CHIP RESISTOR 150KOHM+-5% 1/16W
R0425	0790047	CHIP RESISTOR 5.6KOHM+-5% 1/16W
R0432	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R0433	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0436	0790028	CHIP RESISTOR 220 OHM+-5% 1/16W
R0437	0790053	CHIP RESISTOR 15KOHM+-5% 1/16W
R0441	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W
R0442	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W
R0443	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0444	0790058	CHIP RESISTOR 39KOHM+-5% 1/16W
R0445	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W
R0446	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0447	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W

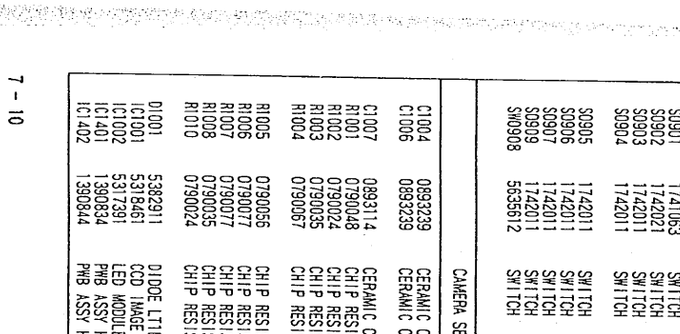
SYMBOL-NO	P-NO	DESCRIPTION
R0448	0790066	CHIP RESISTOR 150KOHM+-5% 1/16W
R0449	0790066	CHIP RESISTOR 150KOHM+-5% 1/16W
R0450	0790066	CHIP RESISTOR 150KOHM+-5% 1/16W
R0451	0790075	CHIP RESISTOR 680KOHM+-5% 1/16W
R0475	0790052	CHIP RESISTOR 12KOHM+-5% 1/16W
R0476	0790052	CHIP RESISTOR 12KOHM+-5% 1/16W
R0477	0790052	CHIP RESISTOR 12KOHM+-5% 1/16W
R0478	0790052	CHIP RESISTOR 12KOHM+-5% 1/16W
R0479	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0480	0790026	CHIP RESISTOR 150 OHM+-5% 1/16W
R0481	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0489	0790065	CHIP RESISTOR 120KOHM+-5% 1/16W
R0493	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R0498	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0551	0790047	CHIP RESISTOR 5.6KOHM+-5% 1/16W
R0552	0790074	CHIP RESISTOR 560KOHM+-5% 1/16W
R0554	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0556	0790074	CHIP RESISTOR 560KOHM+-5% 1/16W
R0558	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0560	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0562	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W
R0563	0790056	CHIP RESISTOR 27KOHM+-5% 1/16W
R0566	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0567	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R0568	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0570	0790052	CHIP RESISTOR 12KOHM+-5% 1/16W
R0571	0790053	CHIP RESISTOR 15KOHM+-5% 1/16W
R0572	0790047	CHIP RESISTOR 5.6KOHM+-5% 1/16W
R0574	0104301	CHIP RESISTOR 4.7KOHM+-0.5% 1/16W
R0575	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R0576	0790052	CHIP RESISTOR 12KOHM+-5% 1/16W
R0579	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0580	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0581	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0582	0790047	CHIP RESISTOR 5.6KOHM+-5% 1/16W
R0584	0104115	CHIP RESISTOR 3.9KOHM 1/10W
R0585	0790052	CHIP RESISTOR 12KOHM+-5% 1/16W
R0586	0790052	CHIP RESISTOR 12KOHM+-5% 1/16W
R0587	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0588	0104304	CHIP RESISTOR 22KOHM+-0.5% 1/16W
R0589	0104303	CHIP RESISTOR 12KOHM+-0.5% 1/16W
R0590	0104302	CHIP RESISTOR 5.6KOHM+-0.5% 1/16W
R0591	0790065	CHIP RESISTOR 120KOHM+-5% 1/16W
R0592	0790062	CHIP RESISTOR 68KOHM+-5% 1/16W
R0593	0790075	CHIP RESISTOR 680KOHM+-5% 1/16W
R0594	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R0595	0790062	CHIP RESISTOR 68KOHM+-5% 1/16W
R0605	0790062	CHIP RESISTOR 68KOHM+-5% 1/16W
R0606	0790062	CHIP RESISTOR 68KOHM+-5% 1/16W
R0607	0790062	CHIP RESISTOR 68KOHM+-5% 1/16W
R0609	0790062	CHIP RESISTOR 68KOHM+-5% 1/16W
R0610	0790062	CHIP RESISTOR 68KOHM+-5% 1/16W
R0611	0790062	CHIP RESISTOR 68KOHM+-5% 1/16W
R0616	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0620	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0621	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0622	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0623	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0624	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W
R0625	0790058	CHIP RESISTOR 39KOHM+-5% 1/16W
R0626	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0634	0790032	CHIP RESISTOR 390 OHM+-5% 1/16W
R0635	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0637	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0639	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0641	0790072	CHIP RESISTOR 390KOHM+-5% 1/16W
R0643	0790061	CHIP RESISTOR 56KOHM+-5% 1/16W
R0644	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0645	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R0646	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0647	0790052	CHIP RESISTOR 12KOHM+-5% 1/16W
R0648	0790019	CHIP RESISTOR 47 OHM+-5% 1/16W
R0649	0790061	CHIP RESISTOR 56KOHM+-5% 1/16W
R0650	0790061	CHIP RESISTOR 56KOHM+-5% 1/16W
R0651	0790061	CHIP RESISTOR 56KOHM+-5% 1/16W
R0652	0104246	CHIP RESISTOR 1.0 OHM+-5% 1/10W
R0653	0104246	CHIP RESISTOR 1.0 OHM+-5% 1/10W
R0656	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0658	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R0659	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0663	0790019	CHIP RESISTOR 47 OHM+-5% 1/16W
R0668	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R0702	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0703	0790026	CHIP RESISTOR 150 OHM+-5% 1/16W
R0704	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R0705	0104562	CHIP RESISTOR 39KOHM+-1% 1/16W
R0706	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R0707	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R0708	0104503	CHIP RESISTOR 27KOHM+-1% 1/16W
R0709	0104562	CHIP RESISTOR 39KOHM+-1% 1/16W
R0710	0104503	CHIP RESISTOR 27KOHM+-1% 1/16W
R0711	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0712	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R0713	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0714	0790066	CHIP RESISTOR 150KOHM+-5% 1/16W
R0715	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0717	0790038	CHIP RESISTOR 1.2KOHM+-5% 1/16W
R0718	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0719	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0721	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0722	0104542	CHIP RESISTOR 10KOHM+-1% 1/16W
R0723	0104503	CHIP RESISTOR 27KOHM+-1% 1/16W
R0732	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0734	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0736	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0737	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R0738	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0739	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0740	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0741	0790027	CHIP RESISTOR 180OHM+-5% 1/16W
R0742	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0743	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0744	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0745	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0746	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0747	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0748	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0749	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0750	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0751	0790075	CHIP RESISTOR 680KOHM+-5% 1/16W
R0752	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0901	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0902	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0903	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W
R0904	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0905	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0907	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0908	0790031	CHIP RESISTOR 330 OHM+-5% 1/16W
R0909	0790031	CHIP RESISTOR 330 OHM+-5% 1/16W
R0910	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W

SYMBOL-NO	P-NO	DESCRIPTION
R0911	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0912	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0913	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R0914	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R0915	0790073	CHIP RESISTOR 470KOHM+-5% 1/16W
R0916	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0917	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0918	0790068	CHIP RESISTOR 220KOHM+-5% 1/16W
R0919	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0920	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0921	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R0926	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0929	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0930	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0931	0790032	CHIP RESISTOR 390 OHM+-5% 1/16W
R0933	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0934	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0935	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0936	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0937	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0938	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0939	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0940	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0941	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0942	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0944	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0947	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0948	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0949	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0950	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0951	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0952	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W
R0953	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R0954	0790032	CHIP RESISTOR 390 OHM+-5% 1/16W
R0955	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W
R0956	0790032	CHIP RESISTOR 390 OHM+-5% 1/16W
R0957	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0958	0790036	CHIP RESISTOR 820 OHM+-5% 1/16W
R0959	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0960	0104111	METAL FILM 10KOHM+-1% 1/10W
R0961	0104111	METAL FILM 10KOHM+-1% 1/10W
R0962	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0963	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0964	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0965	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0967	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0968	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0970	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R0973	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0974	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0975	0103833	CHIP RESISTOR 150 OHM+-5% 0.1W
R0976	0103833	CHIP RESISTOR 150 OHM+-5% 0.1W
R0977	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0978	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0979	0790047	CHIP RESISTOR 5.6KOHM+-5% 1/16W
R0980	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0983	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0984	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0985	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0986	0790073	CHIP RESISTOR 470KOHM+-5% 1/16W
R0987	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0988	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R0989	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R0990	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0991	0790073	CHIP RESISTOR 470KOHM+-5% 1/16W
R0994	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W
R0997	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W
R1100	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R1101	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R1102	0790053	CHIP RESISTOR 15KOHM+-5% 1/16W
R1103	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R1106	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R1107	0790028	CHIP RESISTOR 220 OHM+-5% 1/16W
R1108	0790027	CHIP RESISTOR 180 OHM+-5% 1/16W
R1109	0790027	CHIP RESISTOR 180 OHM+-5% 1/16W
R1110	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R1111	0104521	CHIP RESISTOR 4.12KOHM+-1% 1/16W
R1113	0790038	CHIP RESISTOR 1.2KOHM+-5% 1/16W
R1114	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R1115	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R1116	0104545	CHIP RESISTOR 1.24KOHM+-1% 1/16W
R1117	0104554	CHIP RESISTOR 1KOHM+-1% 1/16W
R1118	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R1119	0104558	CHIP RESISTOR 5.6KOHM+-1% 1/16W
R1123	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R1143	0790036	CHIP RESISTOR 820 OHM+-5% 1/16W
R1144	0790045	CHIP RESISTOR 3.9KOHM+-5% 1/16W
R1147	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R1148	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R1150	0790053	CHIP RESISTOR 15KOHM+-5% 1/16W
R1151	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W
R1153	0790043	CHIP RESISTOR 2.7KOHM+-5% 1/16W
R1154	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R1155	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R1156	0104585	CHIP RESISTOR 100KOHM+-5% 1/32W
R1157	0104581	CHIP RESISTOR 1KOHM+-5% 1/32W
R1160	0790056	CHIP RESISTOR 27KOHM+-5% 1/16W
R1162	0790048	CHIP RESISTOR 6.8KOHM+-5% 1/16W
R1163	0104581	CHIP RESISTOR 1KOHM+-5% 1/32W
R1168	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R1170	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R1171	0790065	CHIP RESISTOR 120KOHM+-5% 1/16W
R1172	0790058	CHIP RESISTOR 39KOHM+-5% 1/16W
R1173	0790065	CHIP RESISTOR 120KOHM+-5% 1/16W
R1174	0790058	CHIP RESISTOR 39KOHM+-5% 1/16W
R1175	0790053	CHIP RESISTOR 15KOHM+-5% 1/16W
R1176	0790053	CHIP RESISTOR 15KOHM+-5% 1/16W
R1177	0790053	CHIP RESISTOR 15KOHM+-5% 1/16W
R1178	0790048	CHIP RESISTOR 6.8KOHM+-5% 1/16W
R1179	0790061	CHIP RESISTOR 56KOHM+-5% 1/16W
R1180	0790068	CHIP RESISTOR 220KOHM+-5% 1/16W
R1181	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W
R1182	0790069	CHIP RESISTOR 0.27MOHM+-5% 1/16W
R1183	0790058	CHIP RESISTOR 39KOHM+-5% 1/16W
R1185	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R1186	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R1187	0790047	CHIP RESISTOR 5.6KOHM+-5% 1/16W
R1188	0790041	CHIP RESISTOR 1.8KOHM+-5% 1/16W
R1189	0790031	CHIP RESISTOR 330 OHM+-5% 1/16W
R1190	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R1191	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R1193	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W
R1194	0790048	CHIP RESISTOR 6.8KOHM+-5% 1/16W
R1195	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R1197	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R1198	0790043	CHIP RESISTOR 2.7KOHM+-5% 1/16W
R1206	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R1207	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R1208	0790048	CHIP RESISTOR 6.8KOHM+-5% 1/16W
R1210	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W(E55A)

SYMBOL-NO	P-NO	DESCRIPTION
R1211	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R1212	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W(E55A)
R1213	0790063	CHIP RESISTOR 82KOHM+-5% 1/16W(E55A)
R1215	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W(E55A)
R1216	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W(E55A)
R1217	0790032	CHIP RESISTOR 390 OHM+-5% 1/16W
R1218	0104503	CHIP RESISTOR 27KOHM+-1% 1/16W
R1219	0104537	CHIP RESISTOR 3.6KOHM+-1% 1/16W
R1220	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R1221	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R1222	0104561	METAL FILM 18KOHM+-1% 16W(E55A)
R1223	0104564	CHIP RESISTOR 18.7KOHM+-1% 1/16W(E55A)
R1301	0104537	CHIP RESISTOR 3.6KOHM+-1% 1/16W
R1302	0104524	CHIP RESISTOR 5.49KOHM+-1% 1/16W
R1304	0790038	CHIP RESISTOR 1.2KOHM+-5% 1/16W
R1306	0105193	CHIP RESISTOR 1.8KOHM+-0.5% 1/16W
R1307	0105198	CHIP RESISTOR 30KOHM+-0.5% 1/16W
R1311	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R1316	0790005	CHIP RESISTOR 3.9 OHM+-5% 1/16W
R1317	0790005	CHIP RESISTOR 3.9 OHM+-5% 1/16W
R1318	0790032	CHIP RESISTOR 390 OHM+-5% 1/16W
R1319	0104559	CHIP RESISTOR 4.7KOHM+-1% 1/16W
R1321	0104559	CHIP RESISTOR 4.7KOHM+-1% 1/16W
R1322	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R1323	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R1324	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R1325	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R1326	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
RT0101	5040163	TRIMMER
RT0102	5040161	SEMI VARIABLE 2.2KOHM
RT0203	5040204	SEMI VARIABLE 10KOHM
RT0204	5040204	SEMI VARIABLE 10KOHM
RT0205	5040203	SEMI VARIABLE 4.7KOHM
RT0206	5040203	SEMI VARIABLE 4.7KOHM
RT0207	5040204	SEMI VARIABLE 10KOHM
RT0209	5040204	SEMI VARIABLE 10KOHM
RT0210	5040201	SEMI VARIABLE 470OHM
RT0211	5040203	SEMI VARIABLE 4.7KOHM
RT0212	5040202	SEMI VARIABLE 2.2KOHM
RT0215	5040204	SEMI VARIABLE 10KOHM
RT0216	5040205	SEMI VARIABLE 22KOHM
RT0401	0104172	CHIP RESISTOR 12KOHM+-10% 1/8W
RT0402	0104172	CHIP RESISTOR 12KOHM+-10% 1/8W
D0001	5382221	LED PLT-462T3
D0205	5337422	DIODE DA221
D0551	5337391	DIODE D1FS4
D0552	5337371	DIODE SB07-03C
D0556	5337353	DIODE MA132K
D0557	5337371	DIODE SB07-03C
D0601	5337422	DIODE DA221
D0902	5337351	DIODE MA132WK
D0903	5337411	DIODE HSM2838C
D0912	5337351	DIODE MA132WK
D0913	5337352	DIODE MA132WA
D0914	5337351	DIODE MA132WK
D0915	5337001	DIODE 1SR143
D0916	5337352	DIODE MA132WA
D0920	5337412	DIODE HSM2836C
D0921	5337422	DIODE DA221
D1101	5337641	DIODE HSM107S
D1103	5337353	DIODE MA132K
D1104	5337451	DIODE RB715F
D1106	5337353	DIODE MA132K
D1107	5337353	DIODE MA132K
D1108	5337351	DIODE MA132WK
D1109	5337351	DIODE MA132WK
D1305	5337422	DIODE DA221
IC0101	1366631	IC HA118189MP
IC0201	1366901	IC HA118372
IC0202	1366641	IC CXL5502N
IC0203	1352331	IC CXL5507M
IC0204	1351492	IC MM1029AF
IC0207	1352032	IC NJM2249M
IC0401	1366371	IC HA118196F
IC0402	1366601	IC LA7471M
IC0551	1366251	IC TL1464IPT
IC0601	1359861	IC XR1080CV
IC0602	1366391	IC LB1885MA
IC0603	1366651	IC BA6417F
IC0901	1366811	IC CXP80724-167Q
IC0902	1352582	IC S-84206F
IC0903	1366081	IC HD74HCT125T
IC0904	1366611	IC XLU5949FS
IC0905	1352384	IC NJM2903V
IC1101	1366681	IC HA118184F
IC1102	1354723	IC HD49318F
IC1103	1366691	IC HG51B015TF
IC1104	1354694	IC HG51A017FB
IC1105	1396031	IC HD6433378V05F
IC1106	1366951	IC S-2939GIF10G-TF
IC1107	5300161	IC NJM3404AM
IC1108	1359931	IC TC4W66F
IC1109	1365191	IC NJM3414M
IC1110	1366731	IC UPD16508GB-2A5
IC1301	1366851	IC SC78014GC550
IC1302	1366831	IC SC402152FB
IC1303	1366801	IC XPC17A85V
IC1304	1366171	IC MB88352PFV
IC1305	1352091	IC MM1036
IC1306	1366071	IC LM324DB
IC1307	1366061	IC SN74HCT04ADB
IC1308	1366081	IC HD74HCT125T
Q0001	1322341	TRANSISTOR PT4810F
Q0002	5327521	PHOTO TRANSISTOR SPI-315-C
Q0003	5327521	PHOTO TRANSISTOR SPI-315-C
Q0004	1322341	TRANSISTOR PT4810F
Q0101	1323541	TRANSISTOR FMC5
Q0102	1323231	TRANSISTOR 2SB1462
Q0103	1323181	TRANSISTOR XP4213
Q0106	1323541	TRANSISTOR FMC5
Q0107	1323231	TRANSISTOR 2SB1462
Q0108	1323321	TRANSISTOR 2SD2216
Q0109	5326521	TRANSISTOR 2SA1576
Q0110	1323171	TRANSISTOR UN9213
Q0113	1323321	TRANSISTOR 2SD2216
Q0115	1323321	TRANSISTOR 2SD2216
Q0116	1323321	TRANSISTOR 2SD2216
Q0117	1323321	TRANSISTOR 2SD2216
Q0123	1323231	TRANSISTOR 2SB1462
Q0124	1323231	TRANSISTOR 2SB1462
Q0125	1323321	TRANSISTOR 2SD2216
Q0127	1323321	TRANSISTOR 2SD2216
Q0129	1323321	TRANSISTOR 2SD2216
Q0131	1323321	TRANSISTOR 2SD2216
Q0135	1323541	TRANSISTOR FMC5
Q0136	1323171	TRANSISTOR UN9213
Q0141	1323231	TRANSISTOR 2SB1462
Q0142	1323231	TRANSISTOR 2SB1462
Q0202	1323321	TRANSISTOR 2SD2216
Q0203	1323173	TRANSISTOR UN9212

SYMBOL-NO	P-NO	DESCRIPTION
Q0208	1323171	TRANSISTOR UN9213
Q0209	1323321	TRANSISTOR 2SD2216
Q0212	1323172	TRANSISTOR UN9113
Q0213	1323301	TRANSISTOR 2SB1219
Q0214	1323171	TRANSISTOR UN9213
Q0215	1323231	TRANSISTOR 2SB1462
Q0216	1323231	TRANSISTOR 2SB1462
Q0217	1323231	TRANSISTOR 2SB1462
Q0218	1323321	TRANSISTOR 2SD2216
Q0219	1323231	TRANSISTOR 2SB1462
Q0220	1323171	TRANSISTOR UN9213
Q0237	1323171	TRANSISTOR UN9213
Q0240	1323231	TRANSISTOR 2SB1462
Q0241	1323171	TRANSISTOR UN9213
Q0250	1323231	TRANSISTOR 2SB1462
Q0254	1323321	TRANSISTOR 2SD2216
Q0261	1323361	TRANSISTOR XP1501
Q0268	5326681	TRANSISTOR XN1C301
Q0401	1323321	TRANSISTOR 2SD2216
Q0405	1323321	TRANSISTOR 2SD2216
Q0407	1323231	TRANSISTOR 2SB1462
Q0551	5326811	TRANSISTOR 2SB1001
Q0552	1308011	TRANSISTOR MPL1
Q0553	1308011	TRANSISTOR MPL1
Q0554	1308011	TRANSISTOR MPL1
Q0555	1323781	TRANSISTOR 2SK1764
Q0602	1323321	TRANSISTOR 2SD2216
Q0603	1323171	TRANSISTOR UN9213
Q0605	1323171	TRANSISTOR UN9213
Q0608	1323321	TRANSISTOR 2SD2216
Q0901	1323231	TRANSISTOR 2SB1462
Q0902	1323081	TRANSISTOR 2SA1036K
Q0903	1323321	TRANSISTOR 2SD2216
Q0904	1323321	TRANSISTOR 2SD2216
Q0905	1323231	TRANSISTOR 2SB1462
Q0906	1323321	TRANSISTOR 2SD2216
Q0907	1323321	TRANSISTOR 2SD2216
Q0908	1323321	TRANSISTOR 2SD2216
Q0915	1323321	TRANSISTOR 2SD2216
Q0916	5326502	TRANSISTOR 2SD1766 (R)
Q0917	1323321	TRANSISTOR 2SD2216
Q0918	1323252	TRANSISTOR XP4501
Q1100	1323171	TRANSISTOR UN9213
Q1101	1323231	TRANSISTOR 2SB1462
Q1102	1323231	TRANSISTOR 2SB1462
Q1103	1323172	TRANSISTOR UN9113
Q1104	1323171	TRANSISTOR UN9213
Q1105	5328192	TRANSISTOR 2SC2462LD
Q1106	1323253	TRANSISTOR XP4401
Q1107	1323321	TRANSISTOR 2SD2216
Q1109	1323231	TRANSISTOR 2SB1462
Q1110	1323171	TRANSISTOR UN9213
Q1112	5328211	TRANSISTOR 2SA1121C(SC)
Q1113	1323171	TRANSISTOR UN9213
Q1114	5328211	TRANSISTOR 2SA1121C(SC)(E55A)
Q1115	1323171	TRANSISTOR UN9213(E55A)
Q1301	5328794	TRANSISTOR DTA143EK
ZD0901	5339213	DIODE RD2.7MB2
⚠T0551	5148331	TRANSFORMER
L0101	0773094	CHOKE COIL 100UH+-10%
L0104	0773124	CHOKE COIL 27UH+-5%
L0105	0773094	CHOKE COIL 100UH+-10%
L0107	0773111	CHOKE COIL 2.7 UH
L0108	0773136	CHOKE COIL 220UH+-5%
L0109	0773134	CHOKE COIL 150UH+-5%
L0110	0773118	CHOKE COIL 10UH+-5%
L0111	0773134	CHOKE COIL 150UH+-5%
L0113	5159177	COIL 470UH
L0114	0773134	CHOKE COIL 150UH+-5%
L0115	0773136	CHOKE COIL 220UH+-5%
L0116	0773135	CHOKE COIL 180UH+-5%
L0117	0773111	CHOKE COIL 2.7 UH
L0120	0773118	CHOKE COIL 10UH+-5%
L0124	0773094	CHOKE COIL 100UH+-10%
L0125	0773094	CHOKE COIL 100UH+-10%
L0201	0773092	CHOKE COIL 47UH+-10%
L0204	0773118	CHOKE COIL 10UH+-5%
L0205	0773135	CHOKE COIL 180UH+-5%
L0206	0773089	CHOKE COIL 22UH
L0207	0773131	CHOKE COIL 82UH+-5%
L0208	0773133	CHOKE COIL 120UH+-5%
L0209	0773089	CHOKE COIL 22UH
L0210	0773129	CHOKE COIL 68UH+-5%
L0211	0773089	CHOKE COIL 22UH
L0215	0773092	CHOKE COIL 47UH+-10%
L0401	0773092	CHOKE COIL 47UH+-10%
L0402	0773094	CHOKE COIL 100UH+-10%
L0551	5129321	CHOKE COIL 10UH
L0552	5129321	CHOKE COIL 10UH
L0553	5129322	CHOKE COIL 22UH
L0554	5129321	CHOKE COIL 10UH
L0555	0773087	CHOKE COIL 10UH+-10%
L0556	5129321	CHOKE COIL 10UH
L0557	5129323	CHOKE COIL 47UH
L0560	5129323	CHOKE COIL 47UH
L0563	5129323	CHOKE COIL 47UH
L0564	0773087	CHOKE COIL 10UH+-10%
L0565	0773094	CHOKE COIL 100UH+-10%
L0566	0773094	CHOKE COIL 100UH+-10%
L0567	0773087	CHOKE COIL 10UH+-10%
L0568	0773087	CHOKE COIL 10UH+-10%
L0602	0773087	CHOKE COIL 10UH+-10%
L0901	0773081	CHOKE COIL 1UH
L0902	0773092	CHOKE COIL 47UH+-10%
L0903	0773094	CHOKE COIL 100UH+-10%
L0904	0773088	CHOKE COIL 15UH
L0907	0773121	CHOKE COIL 15UH+-5%
L0909	0773087	CHOKE COIL 10UH+-10%
L0910	0773094	CHOKE COIL 100UH+-10%
L1102	0773087	CHOKE COIL 10UH+-10%
L1103	0773087	CHOKE COIL 10UH+-10%
L1105	0773087	CHOKE COIL 10UH+-10%
L1106	0773087	CHOKE COIL 10UH+-10%
L1107	0773087	CHOKE COIL 10UH+-10%
L1108	0773087	CHOKE COIL 10UH+-10%
L1109	0773094	CHOKE COIL 100UH+-10%
L1301	0773087	CHOKE COIL 10UH+-10%
L1302	0773087	CHOKE COIL 10UH+-10%
L1303	0773089	CHOKE COIL 22UH
L10901	5761771	BATTERY, BACK UP
X0201	1930051	CRYSTAL
X0601	1930171	CRYSTAL
X0901	1930171	CRYSTAL
X0902	1930031	CRYSTAL
X1101	1930161	CRYSTAL
BL0394	5172541	FILTER
BL0395	5172541	FILTER
BL0396	5172541	FILTER
BL0397	5172541	FILTER
BL0398	0103882	FILTER

Identifying Controls



1. Lens
F1.4 (6~48mm) 8:1 power zoom lens with auto focus and auto iris functions.

2. Record Indicator
This indicator lights when the camera/recorder is recording.

3. Infrared Receiver
The area where infared signals from the wireless remote are received. Aim the remote control to this area for best results.

4. INST. ZOOM (Instant Zoom) Button
Use this button to magnify the image being recorded 1.5 times momentarily.

5. Power Zoom Switch
Use this to zoom automatically ("Using the Power Zoom," p 30).

6. CAMERA/OFF/VIDEO Power Switch
Hold down the red button as you slide the switch to CAMERA or VIDEO. You do not need to hold down the red button to slide the switch to OFF.

7. EJECT Switch
A power soure must be connected before cassettes can be inserted or removed though the CAMERA/OFF/VIDEO switch may be set to OFF ("Inserting and Removing Cassettes,"p15)

8. BATT EJECT (Battery Eject) Switch
Slide this switch to remove the battery, battery case or external power adapter.

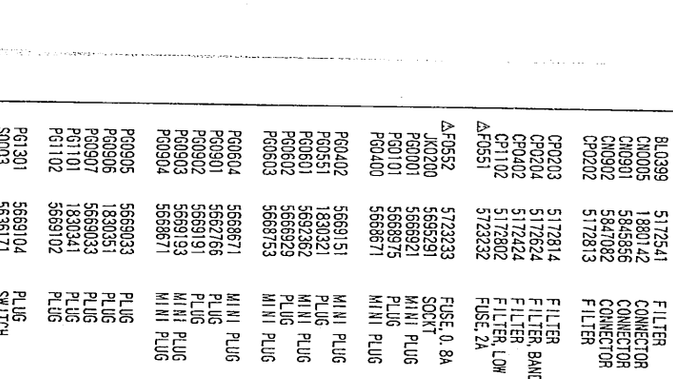
9. Cassette holder close button
CAUTION: Be sure to press this button to close the cassette holder. Otherwise, the tape may become slack and may be damaged.

10. Cassette Holder
A power source must be connected to the camera/recorder before a cassette can be inserted or removed.

11. EIS (Electronic Image Stabilizer) Button (Only for VM-E55A)
EIS corrects slight shaking of an image ("Using the Electronic Image Stabilizer," p. 32).

12. FOCUS Control (AUTO/MAN) Buttons (Only for VM-E55A)
Press these buttons simultaneously to select manual or automatic focus. For manual focusing ("Using Manual Focus", p. 32), press the ▶ or ◀ button to bring the subject into focus. When using manual focus, Focus appears in the viewfinder.

13. FADE Button (Only for VM-E55A)
The FADE button features three modes; white fade, wipe fade, and zoom fade ("Using Fade," p. 33).



14. Microphone

15. PLAY Button
Use to playback recorded tapes.

16. Power Supply Attachment
The battery, battery case and external power adapter connect here ("Loading Batteries," p 12, "Using Alternative Power Sources," p 13)

17. Eye Cup
Pull this cup all the way to see the image in the viewfinder. Return in to its original position when carrying the camera/recorder or storing it.

18. Diopter Control
Use this control to focus the viewfinder.

19. F.FWD Button
Use this button to fast forward tapes or for visual search. During visual search the camera/recorder fast forwards at approximately 9 times normal playback speed. Also use this button to set date and time.

20. Camera Light Shoe
Attach the DC camera light here.

21. Hand Strap
Reter to page 22.

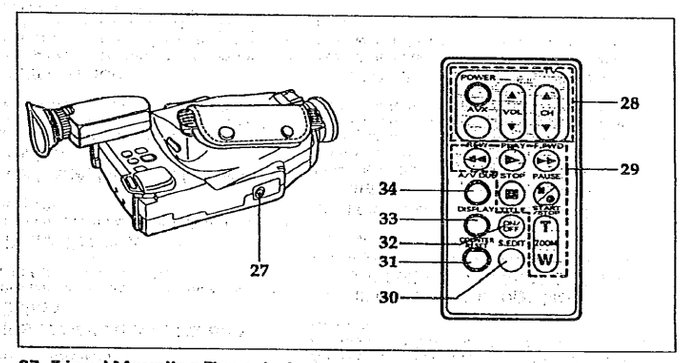
22. Start/Stop Button
When the CAMERA/OFF/VIDEO switch is on CAMERA press this button to start recording. When pressed a second time the camera pauses. During playback use this button to stop the tape temporarily. Pressing a second time resumes normal playback.

23. REW/REVIEW Button
Use this button to fast rewind tapes or for visual search. During visual search the camera/recorder rewinds at approximately 7 times normal playback speed. Also use this button to set date and time. Furthermore, use this button to review the last few seconds of the tape you are recording.

24. AV IN/OUT Jack (Behind the door)
Use this jack to connect the camera/recorder to a VCR or television ("Playing Back Your Recordings," p 24, "Dubbing from the Camera/Recorder to a VCR," p 38 and "Recording Television Programs", P43).

25. DATE Button
Use this button to record the date and time on your tape. Any time that the date and time display is in the viewfinder they are recorded on your tape.

26. STOP Button
Use this button to stop playback, fast forward, or reverse. Also use this button to set date and time.



27. Tripod Mounting Threaded Socket

Use this threaded socket to mount the camera/recorder to a tripod.

28. TV Control Buttons

Used for controlling the TV.

- POWER: Turns the TV on and off.
- AVX: Used for recording picture and sound from an auxiliary input (only wity Hitachi TVs)
- VOLUME: Increase (▲) or decrease (▼) the volume.
- CHANNEL: Top (▲) button switches to the next higher channel, bottom (▼) button switches to the next lower channel. For these to operate, you must have preset your channels.

("Controlling your TV with the Camera/Recorder" P40)

29. Camera/Recorder Remote Control

The shaded buttons on the remote control have the same functions as the corresponding buttons on the camera/recorder.

30. S.EDIT (Synchro Edit) Button (only on the remote control)

Use this button to activate the synchro edit function for dubbing. ("Using Synchro Edit", P39)

31. COUNTER RESET Button (only on the remote control)

Use this button to reset the linear time counter to 0:00:00.

32. TITLE ON/OFF Button (only on the remote control)

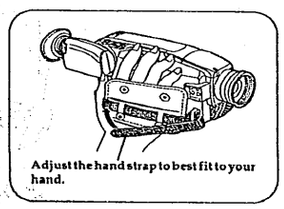
Use this button to create and record titles for your tapes ("Creating and Recording Titles," p 35)

33. DISPLAY Button (only on the remote control)

Use this button to select the viewfinder and TV display ("Using the Display Button," p 19).

34. AV DUB Button (only on the remote control)

Use this button to record new audio and video over existing audio and video.



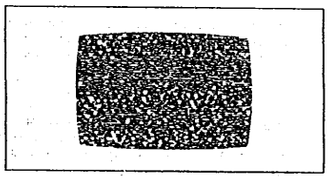
Adjust the hand strap to best fit to your hand.

General Maintenence

Cleaning the Camera/Recorder Heads

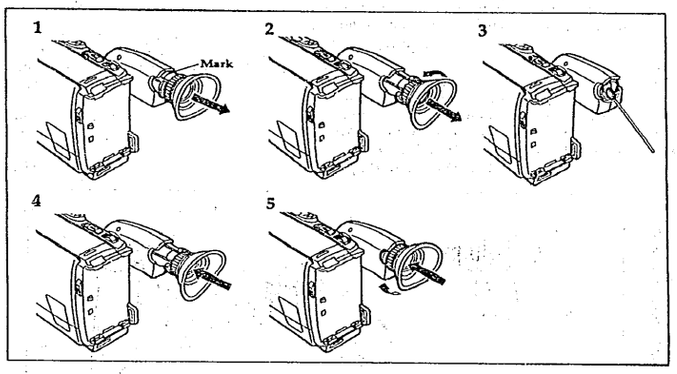
Dirt can accumulate on the video heads on the camera causing the playback picture to become blurred or appear as if video information is lost. This often means that the video heads are dirty. Use a video head cleaner such as Maxell 8M-CLT to clean the heads.

If after cleaning the heads the picture does not clear up consult your nearest dealer or VCR service center for professional head cleaning.



Cleaning the Lens and Picture Tube of the Electronic Viewfinder

The lens of the electronic viewfinder can be user-cleaned if dust, dirt, or other foreign matter adheres to it.



1. Pull out the eye cup to the position where a mark can be seen (up to a half where it is pulled out all the way). The side with the mark should be up.
2. Turn the eye cup counterclockwise until it stops, then pull it out to remove.
3. Clean the picture tube face and lens. To prevent scratching, use a soft non abrasive cloth, swab or lens cleaning paper.
4. Face the rib up as shown above and push the eye cup in until it stops.
5. Turn the eye cup clockwise until it stops, then push it in all the way.

Periodic Maintenance

A precision electromechanical device, the Hitachi VM-E53A/E55A requires maintenance after a period of normal use. We expect that no other maintenance other than head cleaning will be required during the period of warranty unless the camera/recorder is used either heavily or seldom. Defective parts are covered by the warranty. Normal maintenance is the responsibility of the owner. Consult your dealer or local VCR service center for recommendations regarding normal maintenance based on your use patterns, location, and the age of the camera/recorder.

Troubleshooting

Quality is very important at Hitachi. We inspect and check every camera/recorder carefully at the factory under the most rigid quality control and inspection systems. If problems develop please check the following possible solutions before inquiring about professional service.

INSERTING OR REMOVING THE CASSETTE

Symptom	Check Point & Correction
Cassette holder cannot be opened when you push EJECT switch	• Connect the power source.
Cassette cannot be inserted into cassette compartment.	• Load cassette in direction indicated by arrow on cassette.
	• Cassette window must be toward outside.

CAMERA RECORDING

Symptom	Check Point & Correction
Picture does not appear in the viewfinder.	• Remove the lens cap.
	• Slide the CAMARA/OFF/VIDEO switch to CAMERA.
	• Disconnect the AV input cord from the camera/recorder.
The camera/recorder cannot go into the recording mode, even when the start/stop button is pressed.	• Check the record-protect tab on the cassette. See page 16 for details.
	• Push the cassette holder embossed PUSH to close it.
	• Slide the CAMERA/OFF/VIDEO switch to CAMERA.
Picture is out of focus. Auto-focus does not operate.	• Make sure that [Focus] does not appear in the viewfinder. If it is displayed, press FOCUS Control (AUTO/MAN) buttons to erase it. -VM-E55A only
	• Auto-Focus does not operate if a special-effects filter is attached or the objects shown on page 31 are being recorded.

RECORDING TV PROGRAMS OFF THE AIR

Symptom	Check Point & Correction
The camera/recorder cannot be set to the recording mode, even when the Start/Stop button on the camera/recorder is pressed.	• Check the record-protect tab on the cassette. See page 16 for details.
	• Set the CAMERA/OFF/VIDEO switch to CAMERA.
	• Connect the camera/recorder and TV or VCR.

PLAYBACK OF PRE-RECORDED CASSETTE

Symptom	Check Point & Correction
"PLAY" button cannot be engaged.	• Set the CAMERA/OFF/VIDEO switch to "VIDEO" position.
No picture appears on television screen when "PLAY" button is pressed. (TV is connected to the camera/recorder by using RF output adapter.)	• Set the television to the camera/recorder channel (3or4) depending upon the selected channel in the RF channel select switch of RF output adapter.
Interference on playback picture. (TV is connected to the camera/recorder by using RF output adapter.)	• When you see the playback picture on youy TV, adjust fine tuning knob on television set to obtain best picture.
Picture bends at the top of TV screen.	• TV receiver is of older type. It needs to be modified to work properly with camera/recorder.
	• Tape is damaged. Try another cassette.
Color of your TV screen is too bright, too faint or change.	• TV set has VIR circuit. Turn it off during playback.

DEW

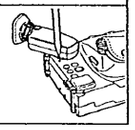
Symptom	Check Point & Correction
"DEW" indication flashes in the viewfinder.	• Condensation on the camera/recorder machnism—wait until the unit has reached normal room temperature, and condensation has dried. "DEW" indication will then stop flashing.

BATTERY CONDITION

Symptom	Check Point & Correction
The ( ) indication in the electronic viewfinder flashes to indicate battery is discharged.	• Try another battery or charge the battery.

NO OPERATION IS ACCEPTED

Symptom	Check Point & Correction
Power is not turned on and no button operations are accepted.	• Remove the power source, and after about one minute, push the reset switch gently using a toothpick, etc. until you feel a click. The dispaly will be reset. Then set the information again.



EJECT OR TROUBLE DISPLAY

Symptom	Check Point & Correction
EJECT or TROUBLE appears in the viewfinder.	• Have you moved the camera/recorder or cassette from a cold place to a warm place so that its temperature changed abruptly? If the temperature has changed, remove the cassette and set the CAMERA/OFF/VIDEO switch to OFF, then wait for about one hour.
	• Remove the cassette and then try to reinsert; remove it several times. If the indication is still shown in the viewfinder, use a cleaning tape to clean the heads and replace the cassette.

HITACHI

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